Plastic Service Group

Service Manual

Hot Runner Controller

profiTEMP

having your hot runner under control

CE

Rev. 1.00.05
10/2014
Translation of original
service manual

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Technical changes reserved

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1 Typographical Conventions

Symbols and conventions are used in this document for faster orientation for you.

Symbols

	Caution	With this symbol, references and information are displayed which are decisive for the operation of the device. In case of non-compliance with or inaccurate compliance there can result damage to the device or injuries to persons.
	Note	The symbol refers to additional information and declarations, which serve for improved understanding.
	Example	With the symbol, a function is explained by means of an example.
	Reference	With this symbol, information in another document is referred to.
	FAQ	Here FAQ (Frequently Asked Questions) are answered.
↗		Cross references are marked with the character f. In the pdf version of the document the objective of the cross reference is reached via the link.
`Equations`		Calculation specifications and examples are represented in this way.
<View>		Menu points (e.g. view) are represented in this way.
|Project|		Windows (e.g. project) are represented in this way.
n.a.		Not applicable, not existing

1.1 Additional and continuative documents

	Operation	Brief instructionprofiTEMP OperationprofiTEMP Operating instructions profiTEMP with control panel DU
	Data sheets and operating manuals	Available by Internet see www.psg-online.de

2 Security References

Before installation, handling or operation of the device, please read through this operating instructions completely and carefully.

2.1 Security References for User

All persons, responsible for the mounting/start-up/operation/maintenance/servicing of the device, have to

- be skilled appropriately
- consider the operating instructions exactly
- regard this operating instructions as part of the product
- maintain the operating instructions during lifetime of the product
- pass the operating instructions to all successive owners or operators of the product
- make sure, that every obtained amendment is integrated in the instructions

Please note the following safety instructions necessarily for protection against electric shock, risks of injuries and fire.

Before start-up, adhere strictly to the local safety regulations as well as the safety instruction.

Consider the regulations for prevention of industrial accidents for electrical installations and equipment by government safety organization in industrial facilities.

Do not throw packaging material careless away, thermoplastic foil/ styrofoam parts etc. may get dangerous for children.

Position the device exclusively on planes of stable and solid ground.

Protect device against moisture. Do not use in areas with high humidity.

Check, that the specified voltage on the type plate is identical with the mains voltage on-site.

Before each use check device, power supply cord and connector.

Ensure that the power cord and the connecting cables are not damaged by overrun, squeezing, tearing or suchlike. Protect the cords/cables against oil, sharp edges and temperatures above 70 °C.

Do not touch the mains plug with wet hands.

Lock the connected counter plug on the rear side of the device with retaining brackets against accidental removal.

Connect the connecting cable only in switched-off status.
Place the connecting cable to prevent stumbling.

Assure yourself that the connected mold is linked to the protective conductor.

Do not place any tanks, filled with liquid, on the top of the device, otherwise a dangerous situation may emerge.

Keep the ventilation slots open. Do not insert any objects.
Maintenance and repair work may be carried out by authorized persons only. Only skilled and on the risks trained persons may use the device. The relevant accidental regulations as well as other general approved safety-rele-

vant, occupational-medical norms have to be obeyed. Unauthorized modifications of the device exclude liability of the manufacturer for resultant damages.

Before opening of the device always switch-off the mains switch and unplug the mains plug or make sure that the device is de-energized. Protect against unintentional reclosing.

Parts of components or components may only be brought into operation, when they were implemented safe of contact before. During installation they have to be de-energized.

For person and property damages, resulting of not considering these operating instructions or not considering these safety instruction, warranty claim terminates. For consequential damage we assume no liability.

The safety instruction are on the right side panel/side door and/or on the covering acrylic glass of the line bars.

Warning

Note the safety instructions necessarily on the hot runner controller identified by this sign/label.

2.1.1 Intended use

The hot runner controllers are designed for temperature-dependent control of electric heaters. More specific descriptions are given in the operating instructions.

When properly used, the safety of the user and the device is guaranteed.

The device may only be used for this purpose. If used for other purposes, the manufacturer / supplier will not take any responsibility and warranty for damages and consequential damages.

2.1.2 Maintenance

No special maintenance of the hot runner controller is necessary. Maintain a clean surface of the operating unit. For cleaning use a damp cloth. Avoid the use of solvents, cleansers and abrasives.

2.2 Warranty Conditions

This product is subject to the legal warranty time periods for faults or deficiencies in manufacture.

Content of Warranty

If a malfunction relatively occurs through the manufacture, the supplier repairs or replaces the nonconforming product, according to their own discretion.

The following repairs do not fall under the warranty and are liable to costs:

- Malfunctions after the legal notice periods have expired.
- Malfunctions caused through operating error of the user (if the device is not operated as described in the manual).
- Malfunctions caused through other devices.
- Changes or damage to the device which do not originate from the manufacturer.

If you wish to use services within the framework of this warranty, please refer to the supplier.

2.3 Transport and Storage

2.3.1 Transport

The hot runner controller is packed fully-mounted in a robust carton, cushioned with foamed material. This assures sufficient protection in normal case.

To avoid damage, the hot runner controllers must be transported STANDING.

2.3.2 Storage

If you should not put the hot runner controller into operation immediately, store it protected against dirt and moisture. Permissible temperature -20…70°C, average permissible humidity < 75 % per year, no condensation.

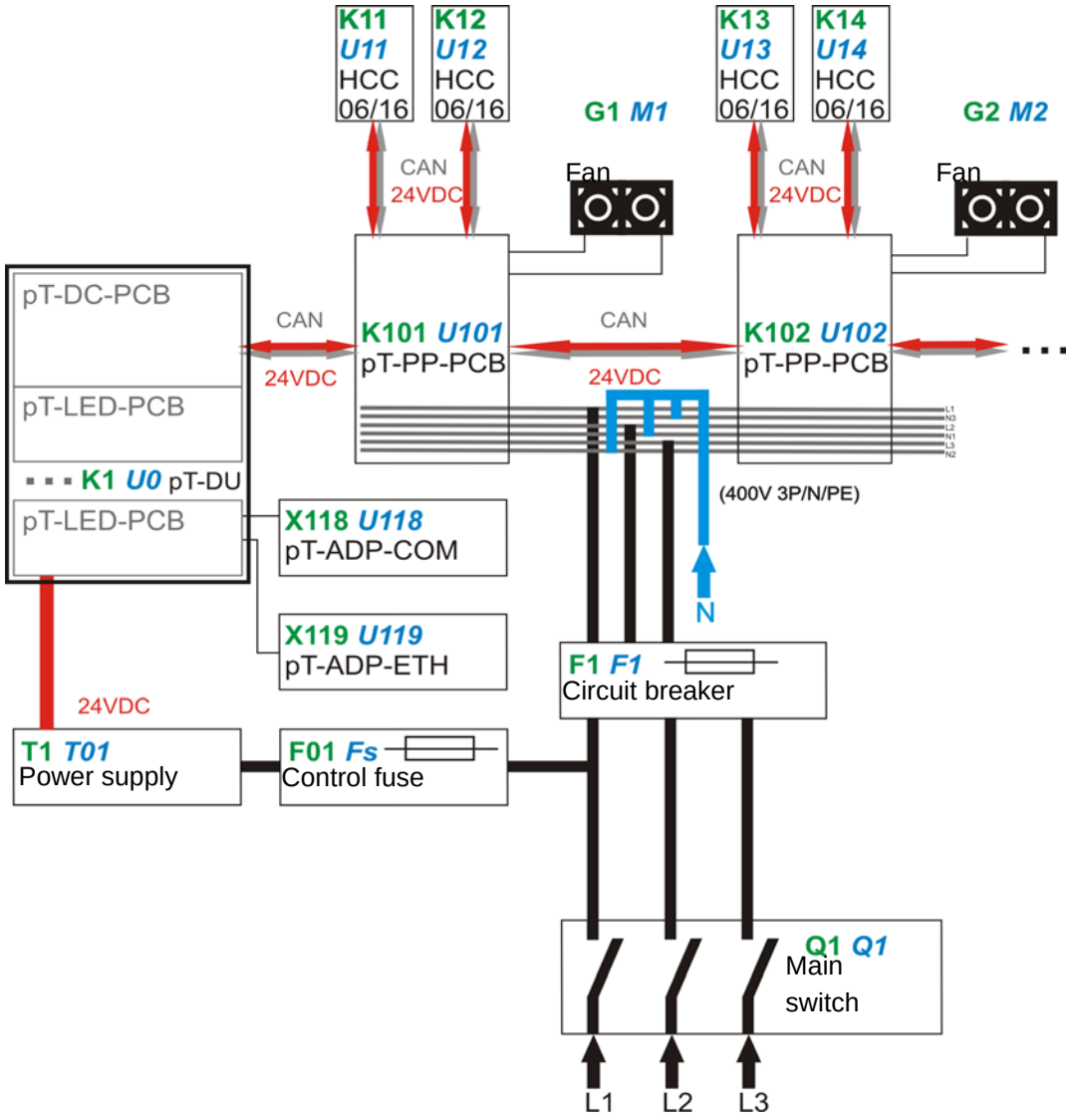
Technical changes reserved

3 System Configuration

All profiTEMP devices are based on a uniform build- and production concept, regardless of desktop. tower or machine integration.

All components are identical from desktop to tower. You can swap freely during maintenance.

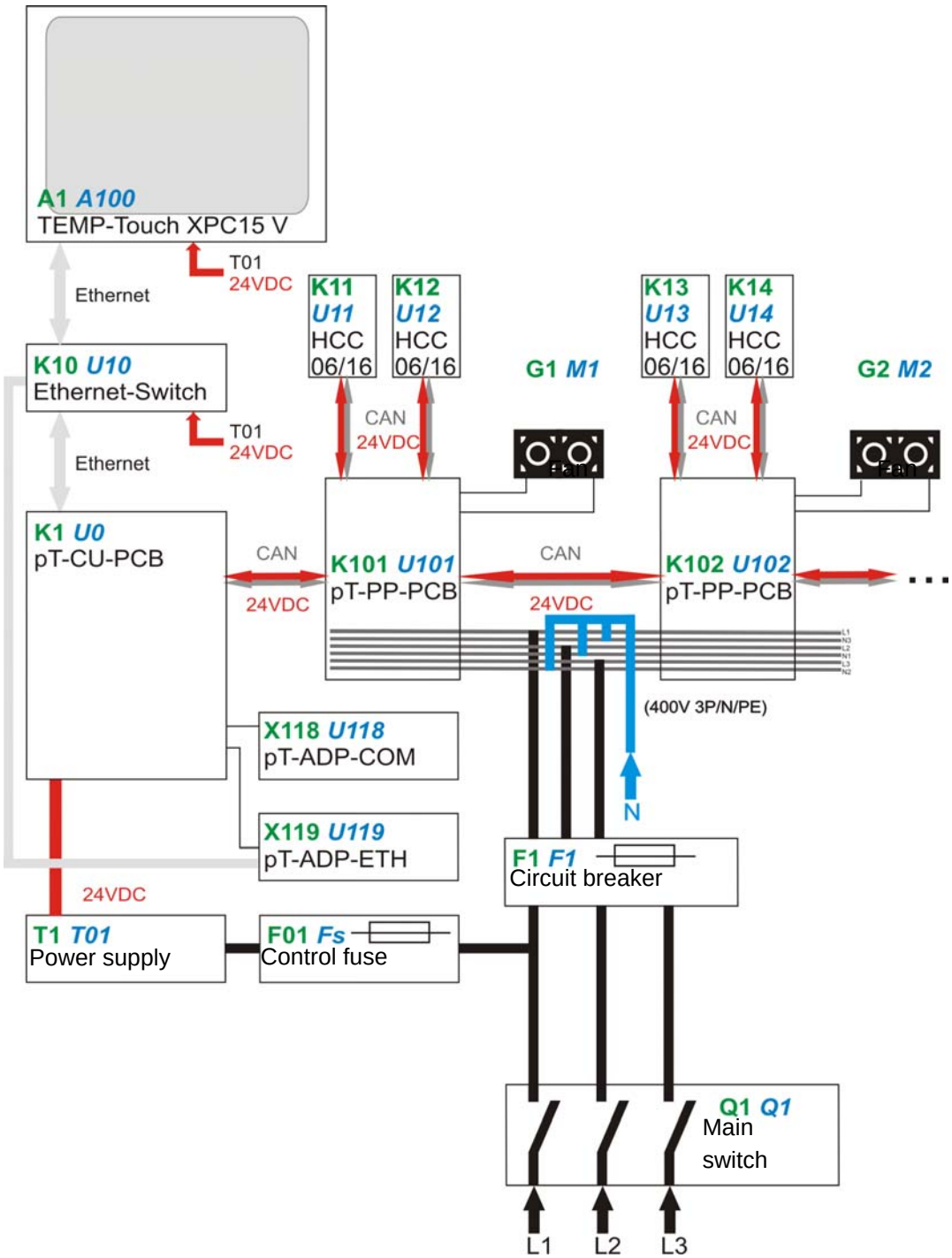
3.1 Schematic presentation standard series profiTEMP Desktop



This schematic presentation is also valid for profiTEMP *** Td (Tower with Display Unit).

Reference designation (IEC 81346-2) ***Item designation OLD***

3.2 Schematic presentation standard series profiTEMP Tower



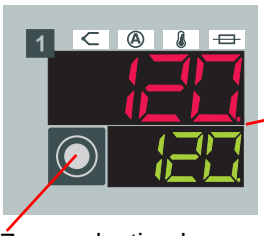
This schematic presentation is also valid for profiTEMP *** Dt (Desktop with Touch).
Reference designation (IEC 81346-2) ***Item designation OLD***

3.3 Front side hot runner controller - Display and Operation

Standard series profiTEMP Desktop

Display Unit pT-DU 36

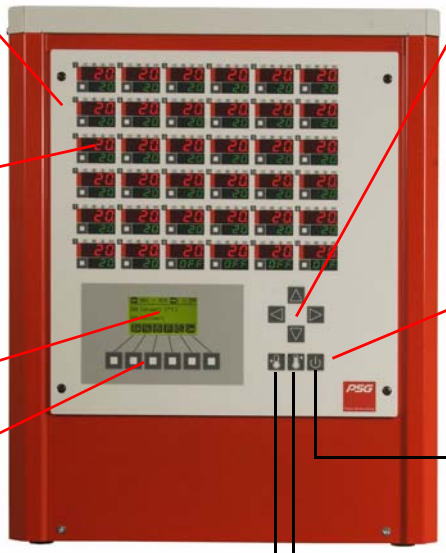
LED display per zone



Zone selection key

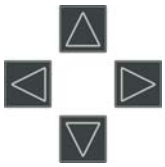
LCD display
4-line display
Key symbols

Soft keys
Assigned with different key symbols, adapted to context of LCD display.



profiTEMP036 Dd
Desktop with Display Unit

Navigation keys
Navigation Up/Down; Scroll zone



Function keys
Direct selection of function by keys

Heating
On/off switching

Boost
Increasing of temperature

Standby
Lowering of temperature

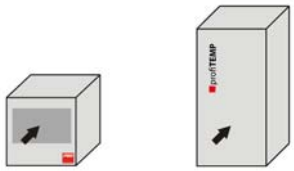
Standard series profiTEMP Tower

TEMP-Touch XPC15
15“ TFT-LCD Display

profiTEMP 060 Tt
Tower with Touch

Display Unit pT-DU 12

profiTEMP 096 Td
Tower with Display Unit

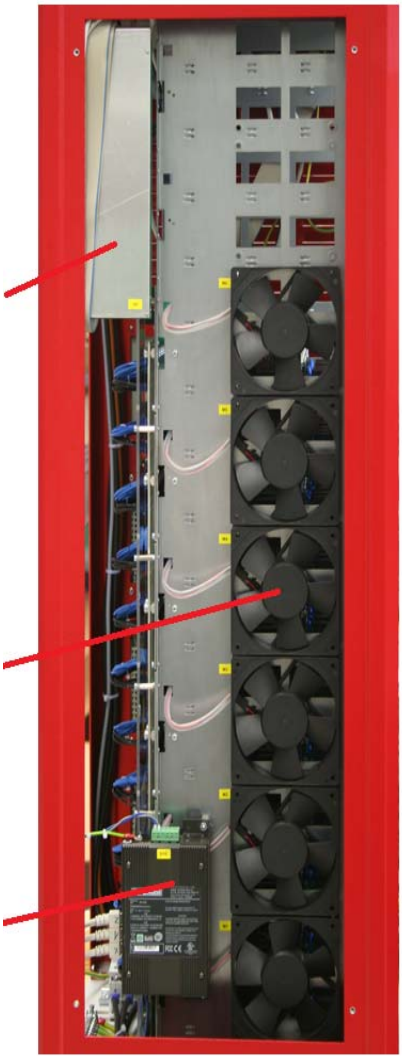
	Behind the front side of profiTEMP Desktop/Tower are ■ the fans ■ the Controller Unit pT-CU (Tower) ■ the Ethernet switch

The parts are identified by:
Specification | **Label** | Reference designation (IEC 81346-2) ***Item designation OLD***

Controller Unit pT-CU K1 *U0*

Fan G1-G8 *M1-M8*

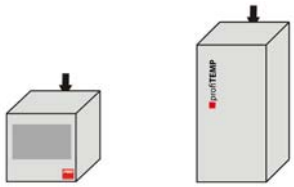
Ethernet switch K10 *U10*



Front side opened

profiTEMP 060 Tt (Tower with Touch)

3.4 Rear side hot runner controller - Connections

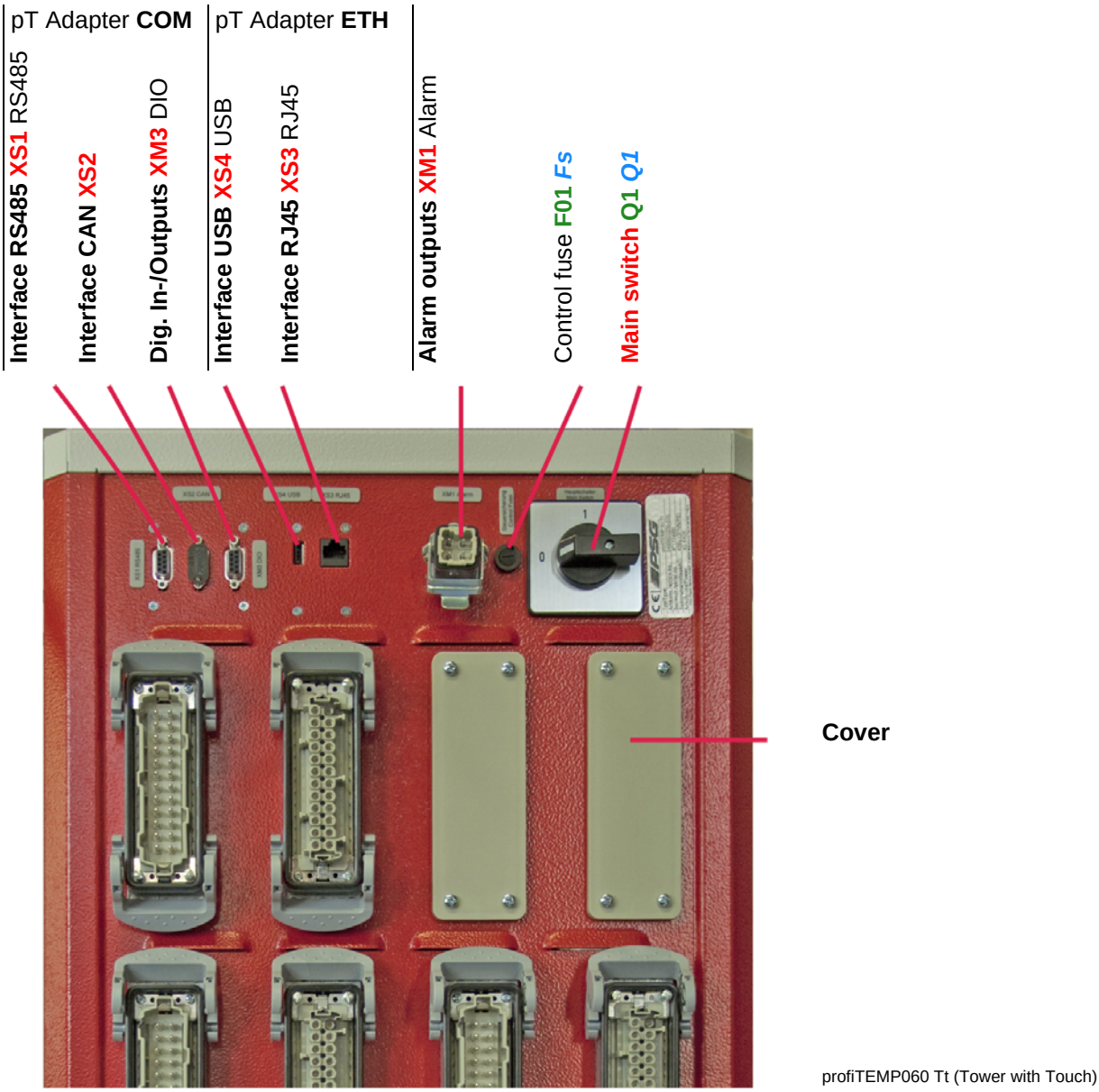


Behind the rear side of profiTEMP Desktop/Tower are connections for

- Power Supply
- Main switch
- Control fuse
- Sensor inputs
- Power outputs
- Alarm output
- Digital In-/Outputs (DIO)
- Interfaces (RS485, CAN, RJ45, USB)

The parts are identified by:

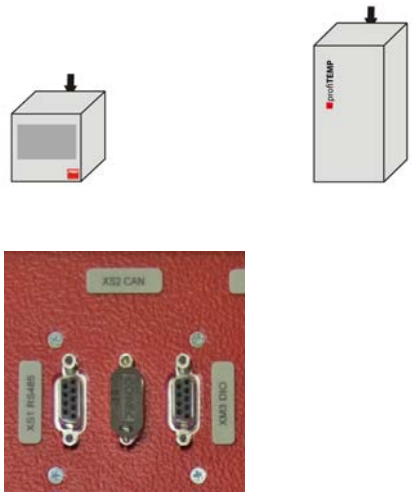
Specification | **Label** | Reference designation (IEC 81346-2) ***Item designation OLD***



profiTEMP060 Tt (Tower with Touch)

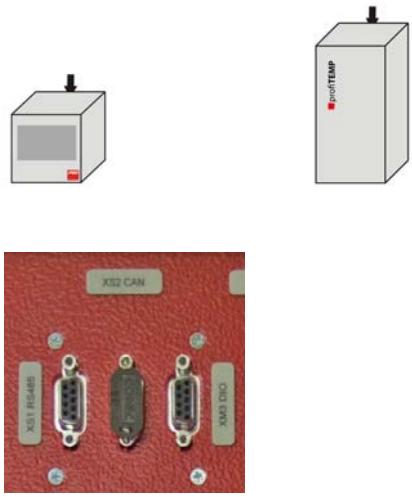
3.4.1 profiTEMP Adapter COM

3.4.1.1 Interface RS485 XS1



XS1 RS485	Serial interface COM	
D-SUB, socket		
Pin		**Function and/or signal**
1	TX+	RS422
2	TX-	RS422
3	TXD	
4	n.a.	
5	RX-	RS422
6	RX+	RS422
7	n.a.	
8	RXD	
9	0V	RS422

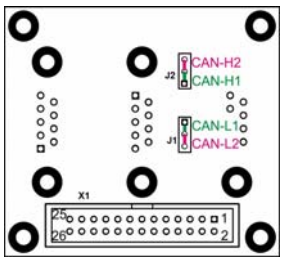
3.4.1.2 Interface CAN XS2

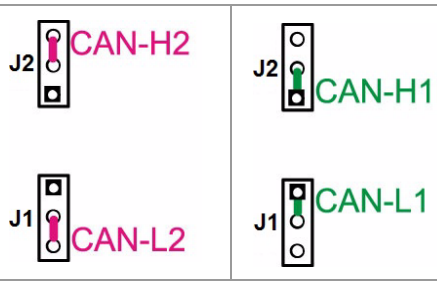


XS2 CAN	Interface CANopen		
D-SUB, plug			
Pin		**Function and/or signal**	
1	n.a.		
2	CAN-L	CAN 2	CAN 1
3	n.a.		
4	n.a.		
5	n.a.		
6	n.a.		
7	CAN-H	CAN 2	CAN 1
8	n.a.		
9	n.a.		

Default setting

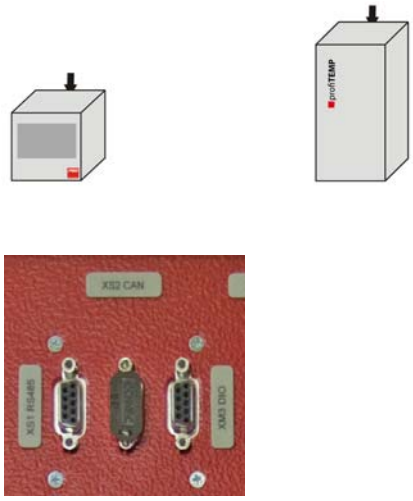
Before opening the housing, deenergize the device and protect it against unintentional reclosing.	Warning	**External** CAN-Bus e.g. for hot runner controller overall functions	**Internal** CAN-Bus e.g. when using the external reference junction



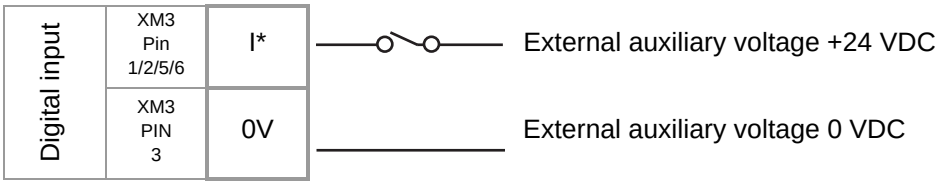


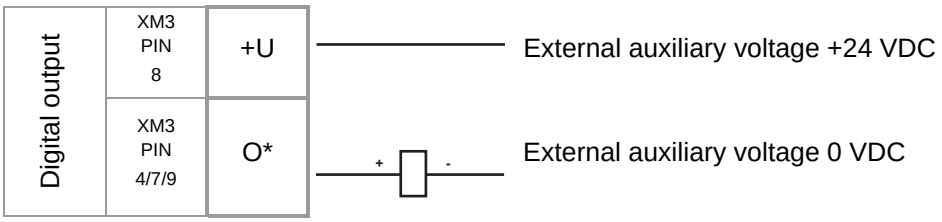
3.4.1.3 Digital in- / - outputs XM3

Digital input (24 VDC), digital output (24 VDC / 500 mA)



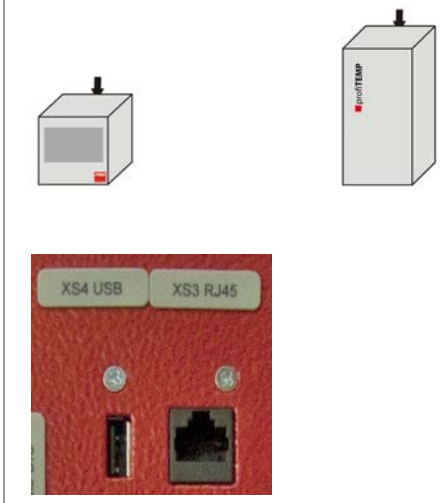
XM3 DIO	**4 Digital In- /3 Digital Outputs**	
D-SUB, socket		
Pin		**Function and/or signal**
1	I1	Digital input 1
2	I3	Digital input 3
3	0V	Reference potential I *
4	O3	Digital output 3
5	I4	Digital input 4
6	I2	Digital input 2
7	O1	Digital output 1
8	+U	Power supply output O*
9	O2	Digital output 2



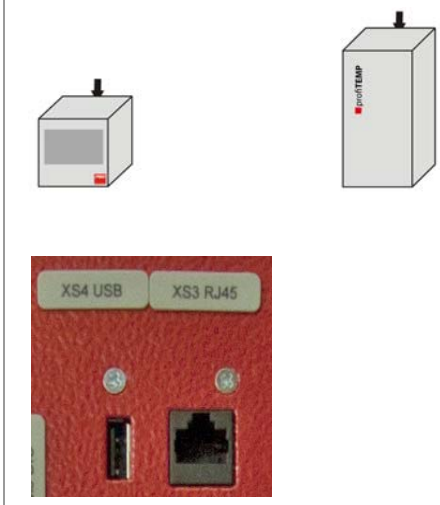


Output 1 Relay see chapter ↗Alarm Output (Signal Plug XM1).

3.4.2 profiTEMP Adapter ETH



XS3 RJ45	Interface Ethernet
RJ45, Socket	



XS4 USB	Interface USB

3.4.3 Alarm Output (Signal Plug XM1)

The alarm output for the signal for enabling of machine/alarm message is implemented as

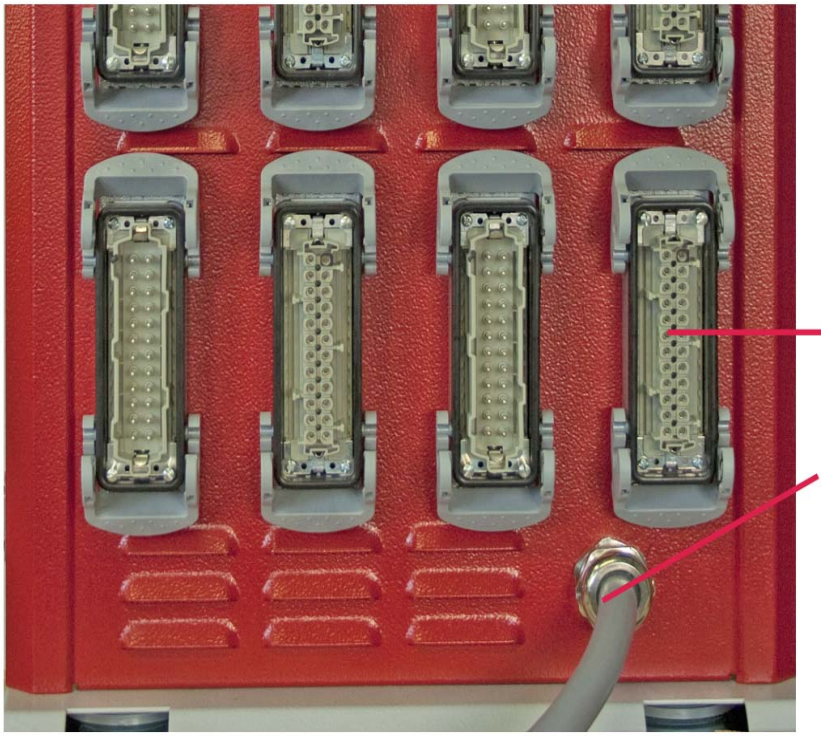
- potential-free relay contact (output 1 relay)
- 4 pole HTS output plug type Wieland 3 pole & PE with counter plug

XM1	Signal plug
HTS Plug	
Pin	**Function and/or signal**
1	
2	
3	n.a.
4	

Rated output current	1 A
Rated voltage	250 VAC (ohmic load)

3.4.4 Control fuse

The control fuse **F01** ***Fs*** protects the internal 24 VDC power supply for the electronics.



Plug XA
Assignment see specification

Power Supply
Supply

profiTEMP 060 Tt (Tower with Touch)

3.4.5 Sensor inputs and power outputs (Plug XA)

Connect the thermocouples TC of type J, L, K to the sensor inputs and heaters to the control outputs of the connection of hot runner mold.

Consider terminal assignment (see specifications).

Output power	Max. 3.6 kW
Rated voltage	230 VAC (ohmic load)

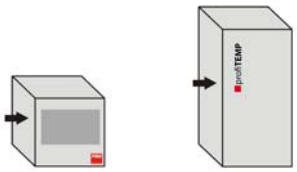
3.4.6 Power Supply

The hot runner controller may be installed and put into operation by specialized staff only.
Before switch-on of the control zones it is to be ensured that the hot runner controller is configured for the application. An incorrect configuration can lead to damage to the control section or to injuries to persons.

The hot runner controller is activated/deactivated by the main switch **Q1** ***Q1***.

Consider connected load.
Check the power supply under the terms of the wiring diagram

3.5 Left side hot runner controller - power supply, power out- & sensor inputs



Behind the left front side panel of profiTEMP Desktop/Tower are connections for

- the circuit breaker
- the power Supply
- the sensor inputs
- the power outputs
- etc. see below

The parts are identified by:
Specification | **Label** | Reference designation (IEC 81346-2) ***Item designation OLD***

pT Controller Unit K1 *U0*

Main switch Q1 *Q1*

Pre-assembled **line bars**

pT Power Plane pT-PP-PCB from K101 *U101*

Current transformer B1/B2 *T1/T2*

Sensor inputs

Power outputs

Pug XA

Assignment see

Specifications

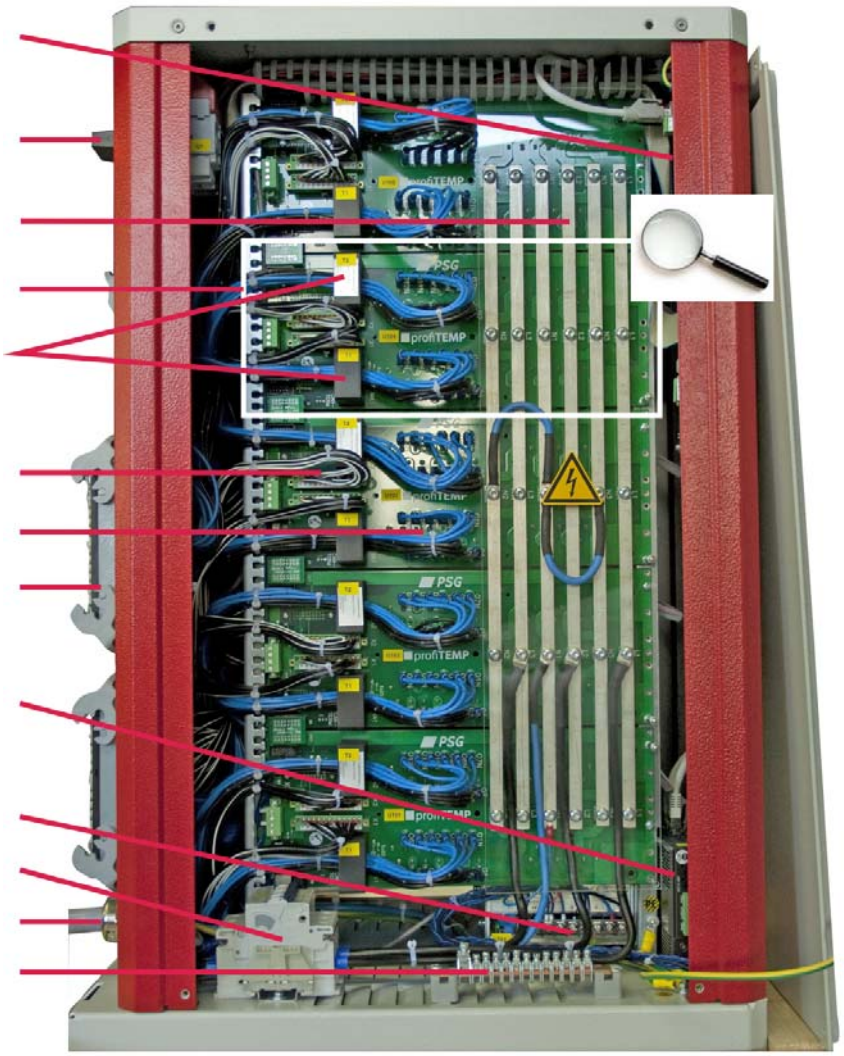
Ethernet switch K10 *U10*

Power supply T1 *T01*

Circuit breaker F01 *F1*

Power Supply

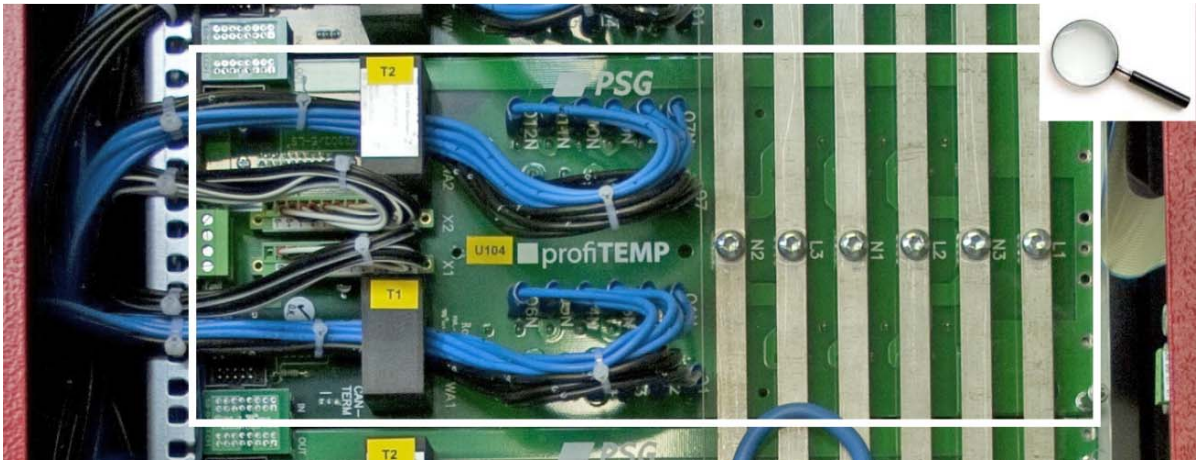
Earth bar



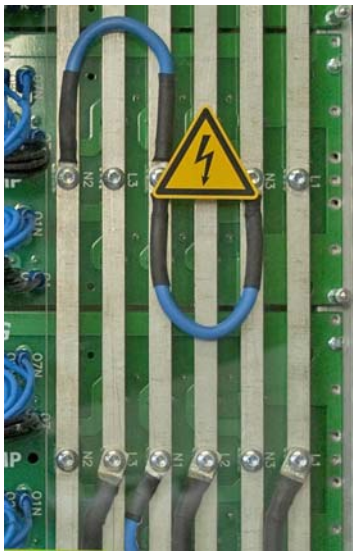
Side panel opened

profiTEMP 060 Tt (Tower with Touch)

3.5.1 profiTEMP Power Plane pT-PP-PCB



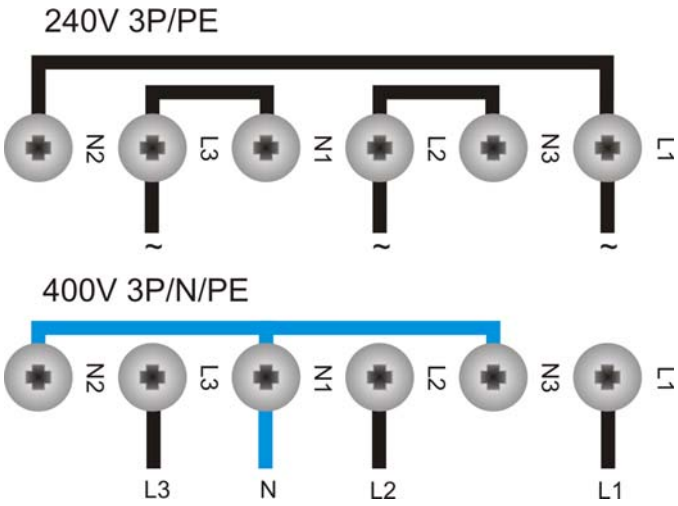
3.5.2 Power Supply



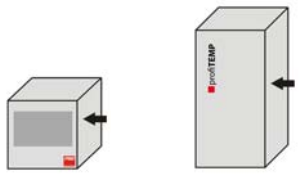
Standard wiring: 400V 3P/N/PE
Tightening torques 2Nm to tighten the bus bar system

N	L	N	L	N	L
2	3	1	2	3	1

3.5.2.1 Possible variants of power supply



3.6 Right side hot runner controller - Power controller cards

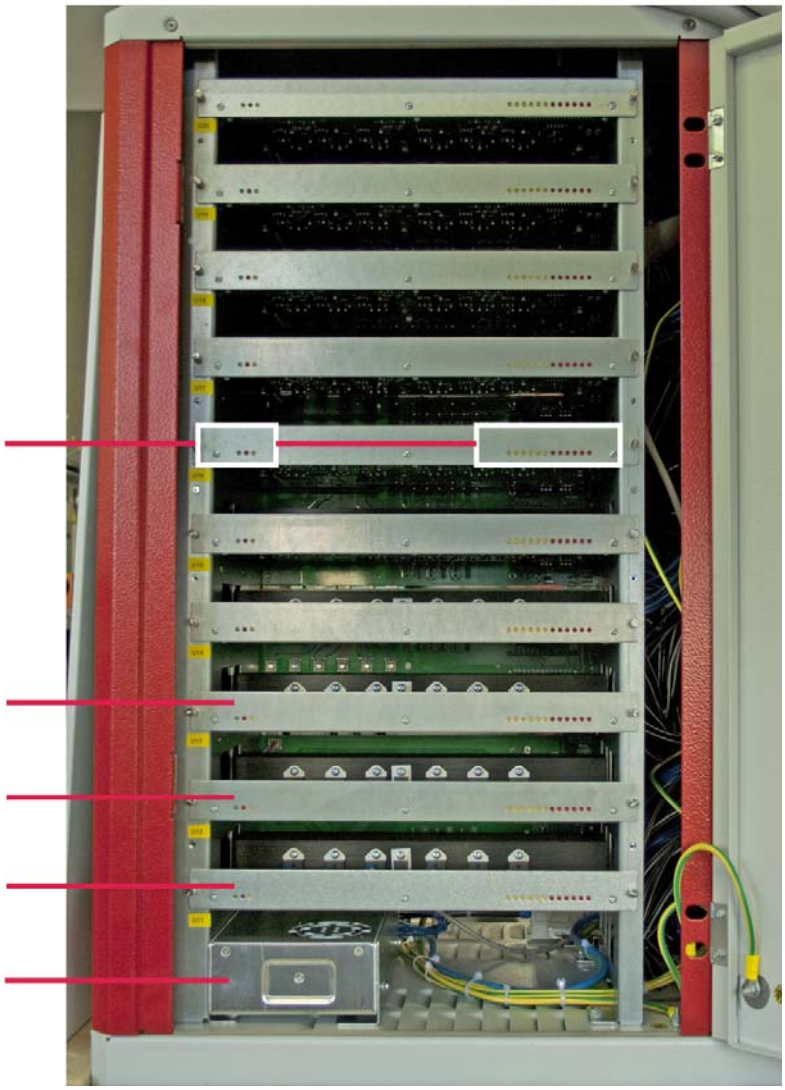
	Behind the right front side panel of profiTEMP Desktop/Tower are ▪ the power controller Hot Runner Controller Card HCC06/16 ▪ the power supply 24VDC

The parts are identified by:
Specification | **Label** | Reference designation (IEC 81346-2) ***Item designation OLD***

See chapter
↗Status display on Hot Runner Controller Card HCC06

etc.

Power controller card K13 ***U13***
Zone 13...Zone18
Power controller card K12 ***U12***
Zone 7...Zone12
Power controller card K11 ***U11***
Zone 1...Zone6
Power supply T1 ***T01***



Right side door opened

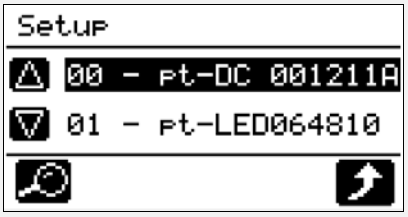
4 Execute setup

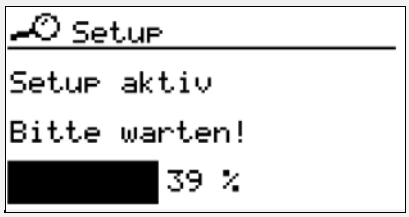
After assembling one hot runner controller or replacement of individual components, there must be a re-addressing of the individual components of the internal CAN bus.

	Execute function! At initial start-up. After replacement and/or exchange of single components.

4.1 Setup for hot runner controller with control panel DU

	Execute setup for hot runner controller with control panel DU.

Basic menu is displayed 		Select function. Login user Admin (details see operating instructions profiTEMP with control panel DU)
		Select function
	 	By the up/down key of the navigation keys the list functions / menu can be scrolled for **Setup.** Call menu
		Activate setup

		Confirm
		The setup is executed and a bar signalizes the progress.
		After the end of the setup, the components are shown again.

4.2 Setup for hot runner controller with operation software TEMPSoft2

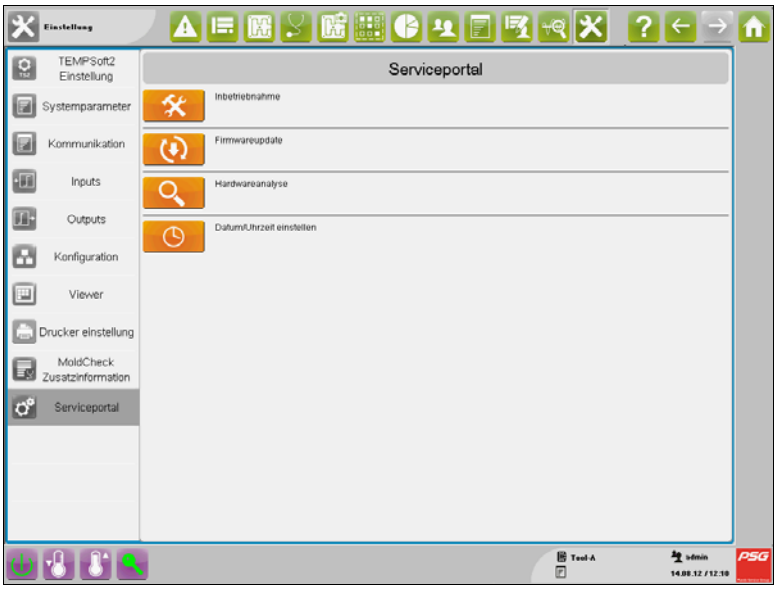
	Execute setup for hot runner controller with operation software **TEMPSoft2**.

Login user **admin.**

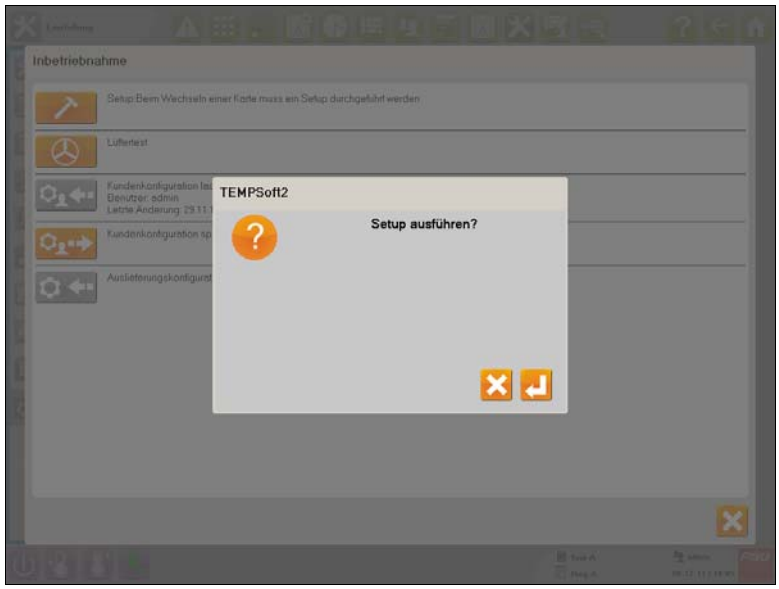
Call setting

Press key

Select service portal



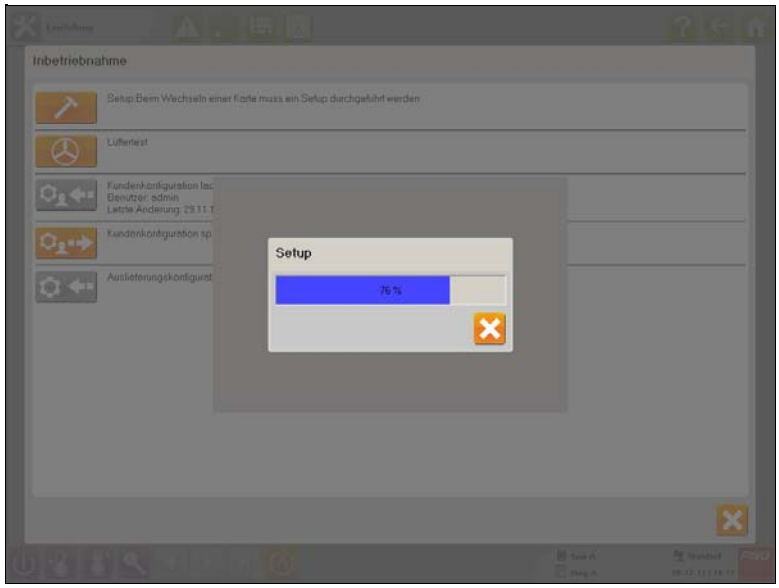
Press key



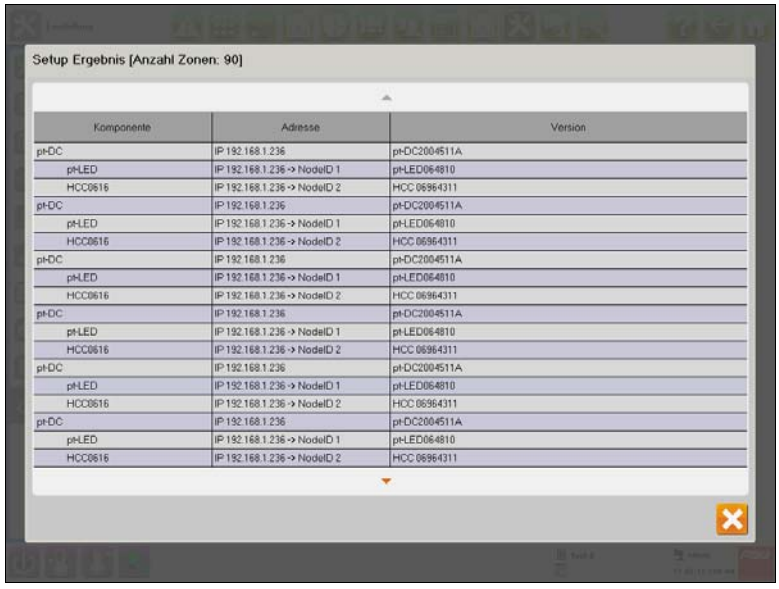
Should a setup be executed?

Press key

Confirm



Wait for end of function.



Komponente	Adresse	Version
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311
pt-DC	IP 192.168.1.236	pt-DC2004511A
pt-LED	IP 192.168.1.236 -> NodeID 1	pt-LED064810
HCC0616	IP 192.168.1.236 -> NodeID 2	HCC 06964311

The result is a list where all determined components, during setup, are shown.

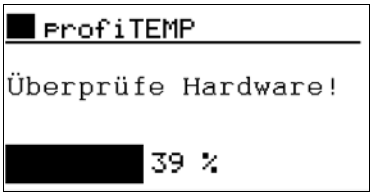
5 Operation after Switch ON

5.1 profiTEMP with control panel DU

- Immediately after switch ON, all segments of the LED display are light. That identifies that all LED displays are intact. Is the display after switch on not light

Reason	Trouble Shooting
Phase missing	■ Check power supply of hot runner controller
Fuses	■ Check circuit breaker ■ Check control fuse (for electronics on L1)
Power supply 24V	■ Check fuse for power supply (see ↗Remove - Power supply 24V) ■ Check power supply (↗Remove - Power supply 24V)
Display and/or Controller Unit	■ Check display and/or Controller Unit ■ See ↗Replace Display Unit and/or Controller Unit

- In the LCD display is the logo and a progress bar (Check Hardware!) shown.



- The first switch-on after leaving the factory asks for the language to use in the LCD display (from HEX file version pT-DC xxx3711z).

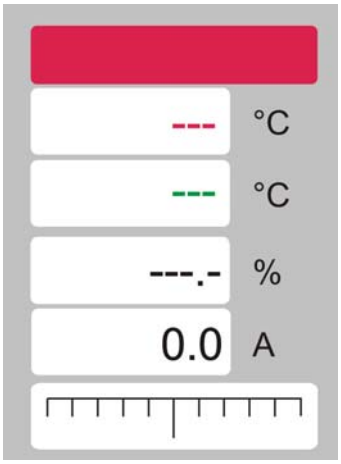
- After a successful end of the hardware check, the LCD display changes to base display.

Messages are shown for detected errors during hardware check. For remedy see chapter ↗Trouble Shooting.

Details on operation of hot runner controller see **Operating Instructions profiTEMP with control panel DU**.

5.2 profiTEMP with TEMPSoft2

- The hot runner controller profiTEMP and the installed operation software **TEMPSoft2** on TEMP-Touch boot after switch on. The TEMPSoft-Logger, responsible for data collection and supply, is started automatically.

Display	Reason	Trouble Shooting
	Communication error (see alarm list) The communication between hot runner controller profiTEMP and operation software **TEMPSoft2** can not be established.	■ Check Ethernet connection. ■ Check IP-address setting in hot runner controller and setting in operation software **TEMPSoft2 Configuration**.
The main keys in the operation software **TEMPSoft2** are grayed	TEMPSoft2-Logger not running.	■ Confirmation to start the TEMPSoft2-Logger by operation software **TEMPSoft2**. ■ Is the TEMPSoft2-Logger running on another PC as the operation software **TEMPSoft2**, start the TEMPSoft2-Logger there.

Details on operation of hot runner controller see **operating instructions TEMPSoft2.**

6 Trouble Shooting

Messages are shown to the operator

- on Touch by operation software **TEMPSoft2**
- on hot runner controller with control panel DU in the LED display
- on hot runner controller with control panel DU in the LCD display
- as status display by status LED's on Hot Runner Controller Card HCC06/16

angezeigt.

For a problem **Directly after Switch-on** see chapter ↗Operation after Switch ON.

For hardware problems of the following types, see reference on chapter ↗Replacement of single components.

Hardware problem		**Trouble Shooting**
Malfunction of all electronic components, connected to the 24VDC power supply (see also ↗Operation after Switch ON). The green LED on the power supply **T1** ***T01*** is not illuminated. Either fuse of power supply or power supply is defective.		See chapter ↗Remove - Power supply 24V
The LED on the Ethernet switch **K10** ***U10*** is not illuminated.		See chapter ↗Replace Ethernet Switch
Touch remains dim		Check control fuse
		See chapter ↗Replace Touch
Touch only shows Logo		See chapter ↗Replace Touch

Below you can see how to find and eliminate errors during operation and how the messages look like in the various displays.

Technical changes reserved

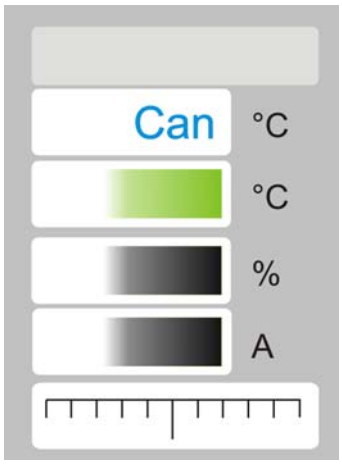
6.1 Message CAn - Change in system configuration

After switch-on of the hot runner controller a "Hardware check" is executed. This checks, whether all components in the project setup configured, are existing on the CAN-Bus.

Reason	Trouble Shooting
No or wrong component responds on address	
Incorrect plug connection CAN	■ Check connection to ribbon cable ■ Replace ribbon cable if necessary
Incorrect plug connection	Check hardware in specified slot 1) (available?, good contacting?) See chapter ↗Execute setup.
Power controller card electrical defect	■ Check LEDs on power controller card (see chapter ↗Status display on Hot Runner Controller Card HCC06) ■ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

1) Cards in the hot runner controller are counting from bottom to top (e.g. *HCC06/Slot2 not existing* means second card from the bottom of the hot runner controller; e.g. the upper 6 LED displays correspond to the first card from the bottom of the hot runner controller)

Display in operation software **TEMPSoft2**, and/or on hot runner controller with control panel DU

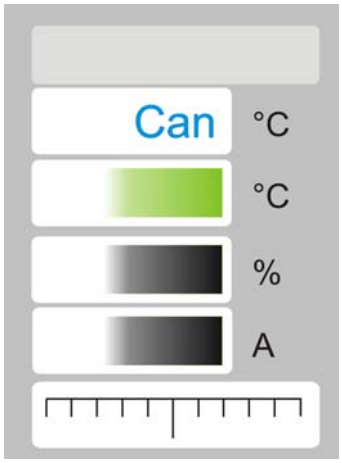
TEMPSoft2	Control panel DU LED display
	
Zone view In the second line of the zone display, the display of the message alternates with the display of the current value.	Initially LED display complete dim. In the first line of the LED display the message is flashing. Second line remains dim.
The message is displayed in **all zones** of the hot runner controller.	

Control panel DU LCD display

The component, the message refers to, is shown in plain-text in the LCD display. Is more than one component affected, the LCD display can be scrolled by the navigation keys .	**<component>/Slot ** not existing**

No LED display on power controller card

Is a power controller card missing in the previous step, then...

TEMPSoft2	Control panel DU LED display
	
Zone view In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed in **all 6 zones** of the concerned power controller card.	

	Control panel DU LCD display
	No display

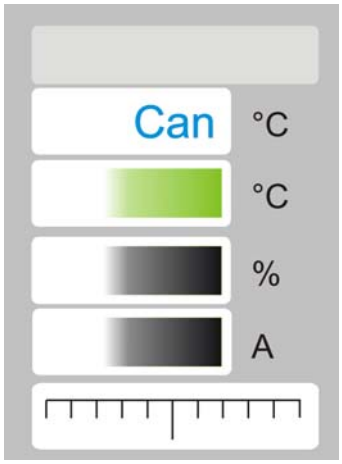
No LED display on power controller card

6.2 Message CAn - Malfunction power controller card

The Hot Runner Controller Card HCC06/16 in the hot runner controller fail due to a hardware problem.

Reason	Trouble Shooting
Power controller card electrical defect	■ Check LEDs on power controller card (see chapter ↗Status display on Hot Runner Controller Card HCC06) ■ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

Display in operation software **TEMPSoft2**, and/or on hot runner controller with control panel DU

TEMPSoft2	Control panel DU LED display
	
Zone view In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed in **all 6 zones** of the concerned power controller card.	

	Control panel DU LCD display
	No display

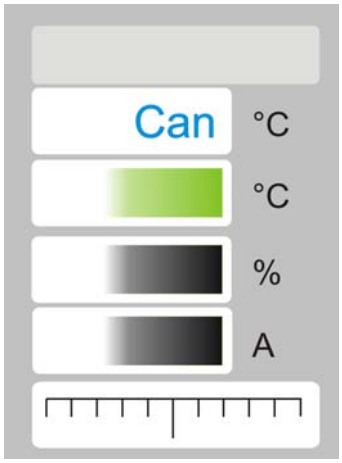
LED display on	
Power controller card	**Green OK-LED blinking** **Red ERR-LED continuous light**

6.3 Message CAn - No more actual values

The message appears during operation, when the CAN-Bus does no longer transfer actual values to the zone.

Reason	Trouble Shooting
The component, that registers the temperature for this zone, does not work any longer; Problem with CAN-Bus	
Incorrect plug connection CAN	■ Check connection to ribbon cable ■ Replace ribbon cable if necessary
Power controller card electrical defect	■ Check LEDs on power controller card (see chapter ↗Status display on Hot Runner Controller Card HCC06) ■ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

Display in operation software **TEMPSoft2**, and/or on hot runner controller with control panel DU

TEMPSoft2	Control panel DU LED display
	
Zone view In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed **per zone**.	

	Control panel DU LCD display
	No display

LED display on	
Power controller card	See ↗Status display on Hot Runner Controller Card HCC06

6.4 Right component existing

After switch-on of the hot runner controller a "Hardware check" is executed. In this case, all specified components in the project setup are checked with the effectively connected components. Is a different component connected, than in the project setup, a message is generated.

Reason	Trouble Shooting
Wrong component responds on address	
Wrong component	Check hardware in specified slot 1) (what is configured?, what is existing?) See chapter ↗Execute setup

1) Cards in the hot runner controller are counting from bottom to top (e.g. *HCC06/Slot2 not existing* means second card from the bottom of the hot runner controller; e.g. the upper 6 LED displays correspond to the first card from the bottom of the hot runner controller)

Display in operation software **TEMPSoft2**, and/or on hot runner controller with control panel DU

TEMPSoft2	Control panel DU LED display
No display	No display

	Control panel DU LCD display
The component, the message refers to, is shown in plaintext in the LCD display. Is more than one component affected, the LCD display can be scrolled by the navigation keys .	**Slot ** wrong component 1)**

No LED display on power controller card

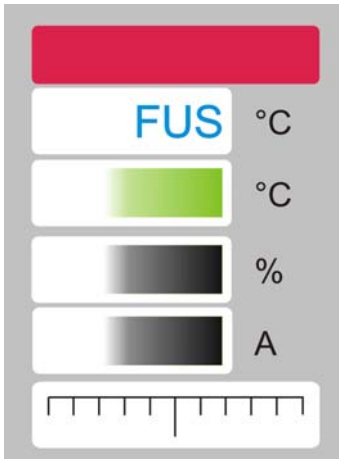
1) Is the message only acknowledged without removing the causes, this can lead to erroneous reactions of the hot runner controller.

6.5 Message FUS - Fuse failure/ phase missing

The hot runner controller controls the status of fuses in the heating circuit and output an message in case of an defective fuse. A phase failure is also detected and signalized.

Reason	Trouble Shooting
Fuse defective	■ Check fuse on power controller card, replace if necessary (see chapter ↗Hot Runner Controller Card HCC06 - Replace fuses)
Phase missing (see chapter ↗Phase missing)	■ Check mains voltage before fuses ■ Check circuit breaker ■ Check control fuse

Display in operation software TEMPSoft2, and/or on hot runner controller with control panel DU

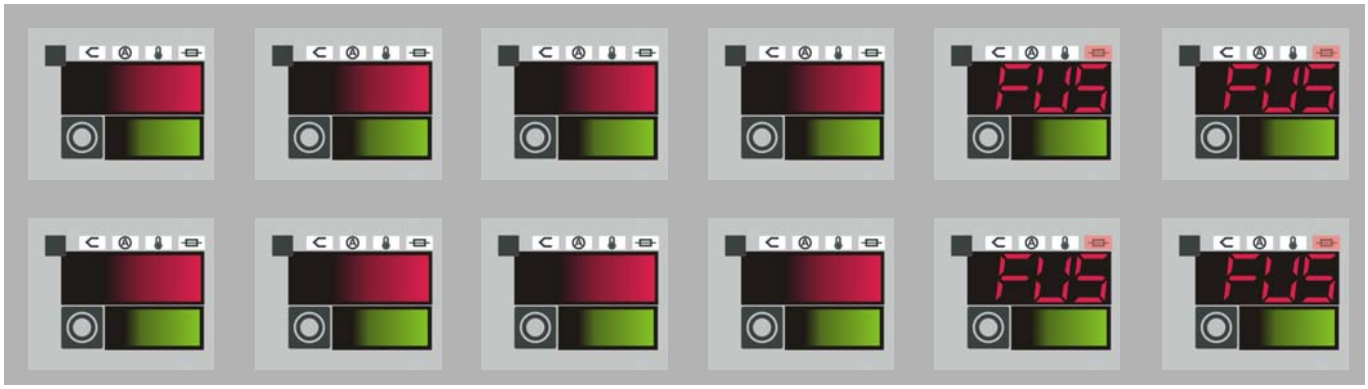
TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	Alarm-LED light. In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed **per zone**.	

	Control panel DU LCD display
	No display

LED display on	
Power controller card	**Red FUS-LED continuous light** **Red ERR-LED continuous light**

6.5.1 Phase missing

Is one phase missing, the LED display of profiTEMP with control panel DU, and/or the view Zone in **TEMPSoft2** shows a certain systematic view. In the present example of a hot runner controller with 12 zones (2 power controller cards), phase L3 is missing. The LED display looks like follows.



Phase L1 supplies Zone1/2; Phase L2 supplies Zone3/4; Phase L3 supplies Zone5/6 on a power controller card.

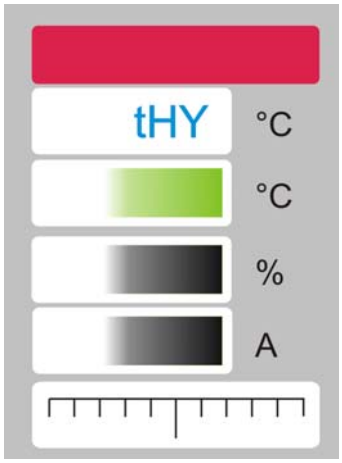
6.6 Message tHY - Thyristor alarm

A thyristor alarm indicates a defect of the thyristor on the Hot Runner Controller Card HCC06/16 in the hot runner controller.

Since this is a critical error case which can damage the heating circuit due to overheating, the heating circuit is immediately switched off (relay on power controller card OFF).

Reason	Trouble Shooting
Defective component	▪ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

Display in operation software **TEMPSoft2**, and/or on hot runner controller with control panel DU

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	Alarm-LED light. In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed **per zone**.	

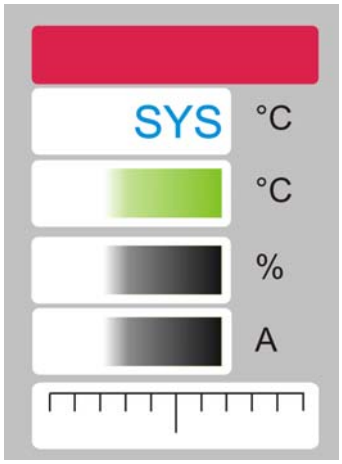
	Control panel DU LCD display
	No display

No LED display on power controller card

6.7 Message SYS - System data error power controller card

A check sum is determined for the system parameters of the Hot Runner Controller Card HCC06/16. Is for some reason for one of these parameters an error detected that can not be corrected, the power controller card generates a system data error.

Reason	Trouble Shooting
Check sum error in EEPROM; EEPROM OK	▪ Edit system parameter [SP03]. Error should disappear after a short time.
Check sum error in EEPROM; EEPROM defective	▪ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed in **all 6 zones** of the concerned power controller card.	

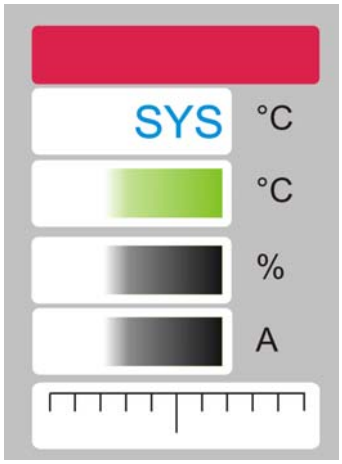
	Control panel DU LCD display
	No display

No LED display on power controller card

6.8 Message SYS - System data error Display Unit and/or Controller Unit

A check sum is determined for the system parameters of the Display Unit pT-DU and/or the Controller Unit pT-CU-PCB (without LCD -/LED display). Is for some reason for one of these parameters an error detected that can not be corrected, the Display Unit and/or the Controller Unit generates a system data error.

Reason	Trouble Shooting
Check sum error in EEPROM; EEPROM OK	■ Edit system parameter [SP03]. Error should disappear after a short time.
Check sum error in EEPROM; EEPROM defective	■ Replace Display Unit and/or Controller Unit (see chapter ↗Replace Display Unit and/or Controller Unit) or send hot runner controller in for repair

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed in **all 6 zones** of the concerned power controller card.	

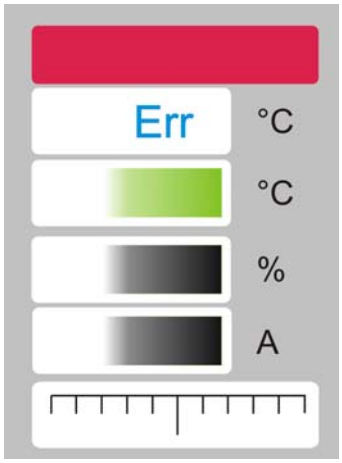
	Control panel DU LCD display
	No display

No LED display on power controller card

6.9 Message Err - Channel data error power controller card

A check sum is determined for the channel parameters of the Hot Runner Controller Card HCC06/16. Is for some reason for one of these parameters an error detected that can not be corrected, the power controller card generates a channel data error.

Reason	Trouble Shooting
Check sum error in EEPROM; EEPROM OK	▪ Edit any channel parameter [P***]. Error should disappear after a short time.
Check sum error in EEPROM; EEPROM defective	▪ Replace power controller card (see chapter ↗Replace Hot Runner Controller Card HCC06) or send hot runner controller in for repair

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed **per zone**.	

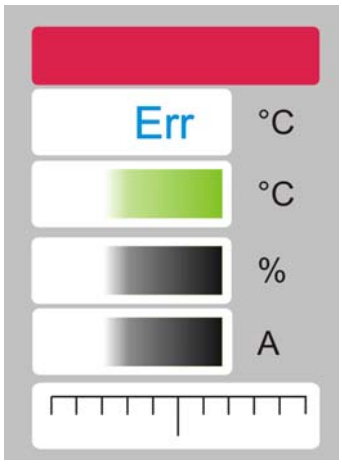
	Control panel DU LCD display
	No display

No LED display on power controller card

6.10 Message Err - Channel data error Display Unit and/or Controller Unit

A check sum is determined for the channel parameters of the Display Unit pT-DU and/or the Controller Unit pT-CU-PCB (without LCD -/LED display). Is for some reason for one of these parameters an error detected that can not be corrected, the Display Unit and/or the Controller Unit generates a channel data error.

Reason	Trouble Shooting
Check sum error in EEPROM; EEPROM OK	▪ Edit any channel parameter [P***]. Error should disappear after a short time.
Check sum error in EEPROM; EEPROM defective	▪ Replace Display Unit and/or Controller Unit (see chapter ↗Replace Display Unit and/or Controller Unit) or send hot runner controller in for repair

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed **per zone**.	

	Control panel DU LCD display
	No display

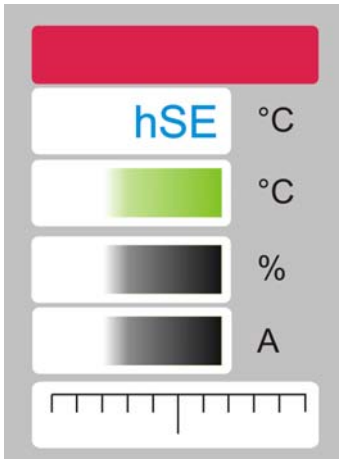
No LED display on power controller card

6.11 Message hAL - Heater alarm

The heat sink temperature has exceeded the limit value.

All outputs on the power controller card are switched off ([P003] Output value = 0).

Reason	Trouble Shooting
High temperature at installation location	▪ Check environmental conditions at installation location
Overload	▪ Check: Coincidence factor = 100% duty ratio permanently at ambient temperature <= 25°C; At ambient temperatures from 25 °C to 45 °C, the coincidence factor can reduce up to 70% depending on the average output values and their duration.
Connector to fan defective	▪ Check connector/ connecting cable ▪ Replace if necessary
Mechanical defect of fan	▪ Check fan (see fan test by **TEMPSoft2**) and clean if necessary

TEMPSoft2	Control panel DU LED display
	
Zone view Field zone name RED shows persistent Alarm. In the second line of the zone display, the display of the message alternates with the display of the current value.	Alarm-LED light. In the first line of the LED display, the display of the message alternates with the display of the current value.
The message is displayed in **all 6 zones** of the concerned power controller card.	

	Control panel DU LCD display
	No display

No LED display on power controller card

Details on fan test see **operating instructions TEMPSoft2.**

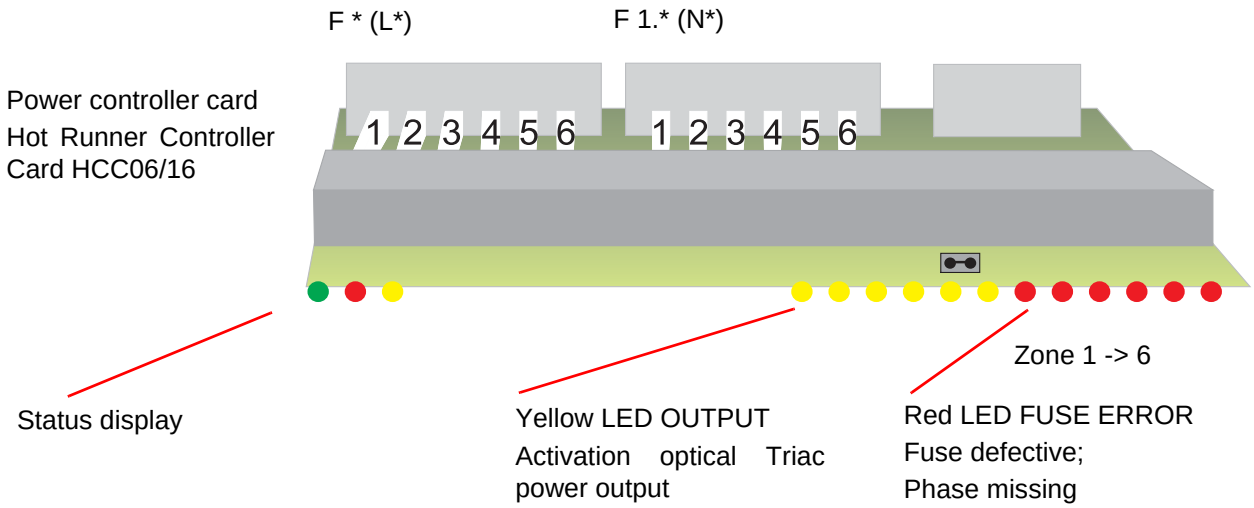
7 Status LED's

7.1 Status display on Hot Runner Controller Card HCC06

On the power controller Hot Runner Controller Cards HCC06/16 are LEDs, which are only visible after opening of the side with the label. ↗Security References consider!

The opening of the cover of the hot runner controller may be carried out by authorized persons only. Only skilled and on the risks trained persons may use the device. The relevant accidental regulations as well as other general approved safety-relevant, occupational-medical norms have to be obeyed.

Before opening of the device always switch-off the mains switch and unplug the mains plug or make sure that the device is de-energized. Protect against unintentional reclosing.



OK-LED green	CAN-LED yellow	ERR-LED red	Status	Card
flashing (1 Hz)	1)		Boot mode	Not yet ready
flashing (2 Hz)	1)	OFF	Pre operational mode	Not yet ready
Continuous light	1)	OFF	Operational mode	Ready; 24 VDC available
Continuous light	1)	Continuous light	General error message	At boot
Continuous light	1)	1-fold blinking cycle, short pause, ...	See **Potential error Pot** on power controller card, that has detected the potential error	Zone are switched off
Continuous light	1)	2-fold blinking cycle, short pause, ...	See **Potential error Pot** on power controller card, that is switched-off due to a potential error on another power controller card	Zone are switched off
Continuous light	1)	3-fold blinking cycle, short pause, ...	See **Current alarm IOL**	Zone are switched off
Continuous light	1)	4-fold blinking cycle, short pause, ...	See **Residual current rSC**	Zone are switched off

1) Blinking shows interface operation of CAN; continuous light, fast blinking, Off: shows failure CAN.

8 Replacement of single components

According to the messages

- on Touch by operation software **TEMPSoft2**
- on hot runner controller with control panel DU in the LED display
- on hot runner controller with control panel DU in the LCD display
- as status display by status LED's on Hot Runner Controller Card HCC06/16

and the suggested measures for trouble shooting, the components are replaced, where necessary.

You should first contact the manufacturer for advice.

In all other, here <u>not</u> explicitly described cases, send the hot runner controller in for repair.

Warning

Note the safety instructions necessarily on the hot runner controller identified by this sign/label.
Is the hot runner controller opened for maintenance, note ↗Security References necessarily!

The opening of the housing of the hot runner controller may be carried out by authorized persons only. Only skilled and on the risks trained persons may use the device. The relevant accidental regulations as well as other general approved safety-relevant, occupational-medical norms have to be obeyed.
Before opening of the device always switch-off the mains switch and unplug the mains plug or make sure that the device is de-energized. Protect against unintentional reclosing.

Single components must be replaced by components of the same type (see type plate). Take care to transfer the same settings.

Tools		Screw driver cross recess 1
		Screw driver Torx 10

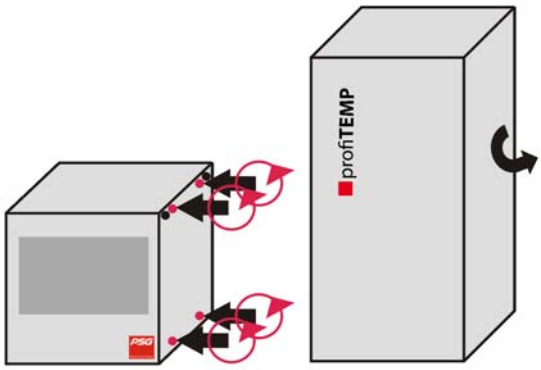
Reference designation (IEC 81346-2) ***Item designation OLD***

1) Details on connections see ↗System Configuration.
2) Details on operation of hot runner controller see **operating instructions profiTEMP with control panel DU**.
3) Details on operation of hot runner controller see **operating instructions TEMPSoft2.**

8.1 Hot Runner Controller Card HCC06 - Replace fuses

Please pay attention to ↗Security References!	Component identification, according to ↗Message FUS - Fuse failure/ phase missing. Switch-off hot runner controller.

Open hot runner controller



Desktop

Untighten the 4 screws on the right side panel of the hot runner controller (side with label).

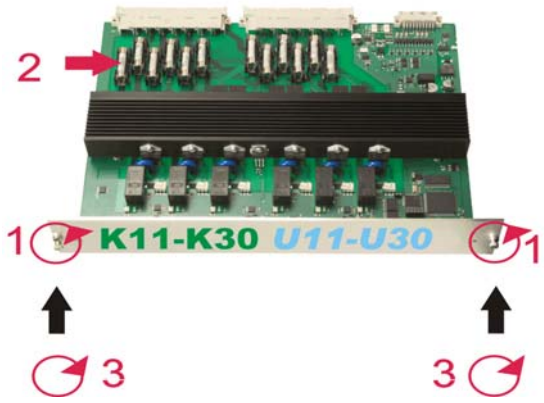
Lift the side panel out carefully.

Caution! Protective conductor connected to side panel.

Tower

Open the right side door of the hot runner controller (side with label).

Replace fuse on card



Desktop/Tower

Cards in the hot runner controller counting from **bottom to top** (see ↗Right side hot runner controller - Power controller cards).

Reference designation K11-K30 *U11-U30*

(1) Open locking for card

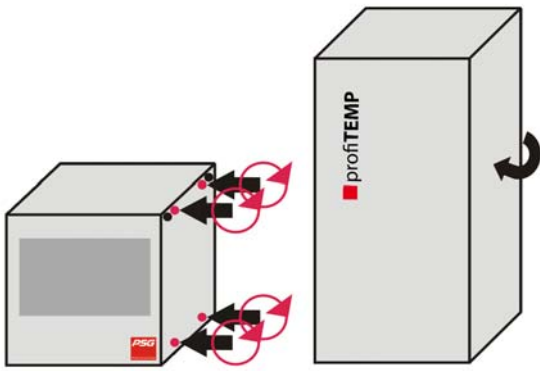
Lift the card out of the slot carefully.

(2) Replace fuses (F1...6, F1.1...F6.1). Look for right fit.

Insert card carefully into the slot and regard the latching of the connectors.

(3) Tighten locking for card

Close hot runner controller



Desktop

Insert side panel again.

Tighten the 4 screws of the side panel.

Tower

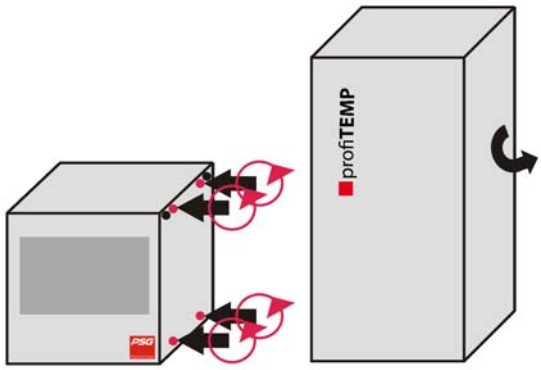
Close side door again.

Switch-on hot runner controller

8.2 Replace Hot Runner Controller Card HCC06

Please pay attention to ↗Security References!	Component identification, according to message. Switch-off hot runner controller.

Open hot runner controller



Desktop

Untighten the 4 screws on the right side panel of the hot runner controller (side with label).

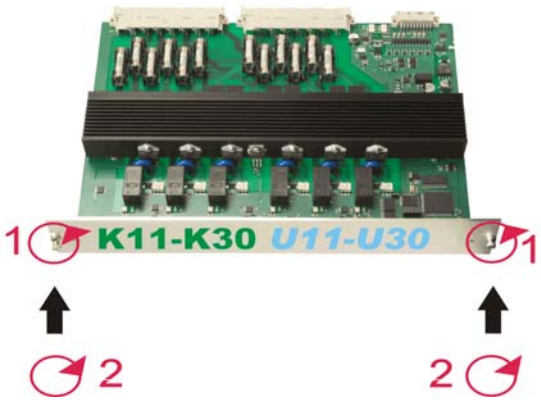
Lift the side panel out carefully.

Caution! Protective conductor connected to side panel.

Tower

Open the right side door of the hot runner controller (side with label).

Replace card



Desktop/Tower

Cards in the hot runner controller counting from **bottom to top** (see ↗Right side hot runner controller - Power controller cards).

Reference designation K11-K30 *U11-U30*

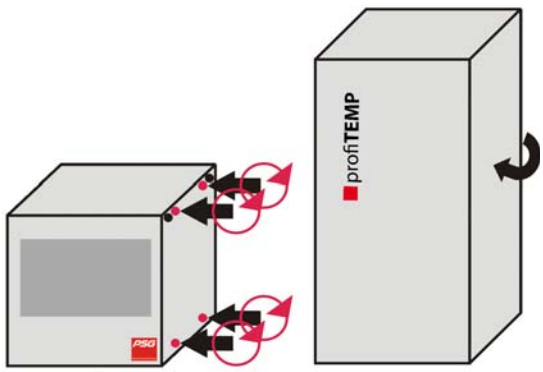
(1) Open locking for card

Lift the card out of the slot carefully.

Insert spare card carefully into the free slot and regard the latching of the connectors.

(2) Tighten locking for card.

Close hot runner controller



Desktop

Insert side panel again.

Tighten the 4 screws of the side panel.

Tower

Close side door again.

Switch-on hot runner controller and execute setup

Desktop

Login to the system as Admin in the basic menu after system start (see chapter Setup $_2$ or ↗Setup for hot runner controller with control panel DU).

Select functions / menu

Select setup and activate it (causes re-addressing of all components).

Tower

Login as admin in **TEMPSoft2** after system start (see chapter Setup $_3$ or ↗Setup for hot runner controller with operation software TEMPSoft2.)

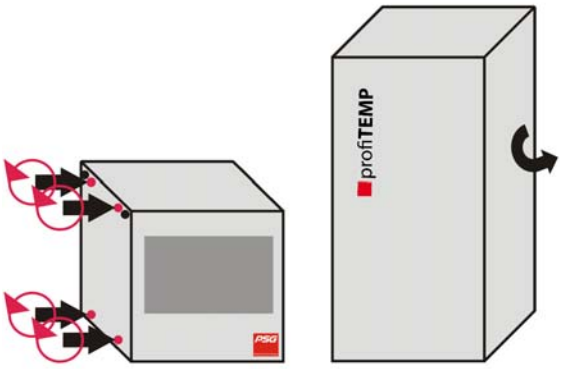
Select Setting/Service portal/Start-up.

Select setup and activate it (causes re-addressing of all components).

8.3 Remove - Power supply 24V

Please pay attention to ↗Security References!	Switch-off hot runner controller.

Open hot runner controller



Desktop

Untighten the 4 screws on the left side panel of the hot runner controller.

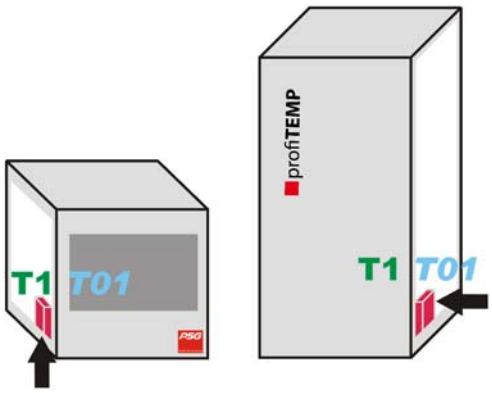
Lift the side panel out carefully.

Caution! Protective conductor connected to side panel.

Tower

Open the right side door of the hot runner controller (side with label).

Remove power supply



Desktop

Power supply is behind the left side panel down right. The power supply is connected to the bottom plate by 2 screws.

Reference designation T1 *T01*

Tower

Power supply is behind the right side door down left. Untighten 2 screws right from the power supply

In older models the power supply is tightened on the left with 2 more screws (open front side).

Disconnect connecting cables from power supply

Desktop/Tower

Write down the terminal assignment!

Untighten the screws of the connections.

Lift power supply out carefully.

Replace fuse in power supply and/or replace power supply

Desktop/Tower

To replace the fuse in the power supply, unscrew power supply.

A defective power supply must be exchanged.

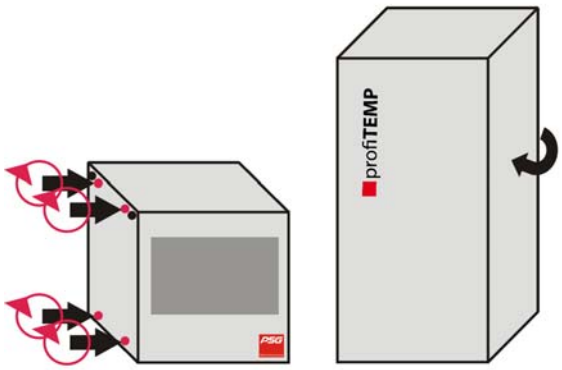
Tighten connecting cables to power supply and tighten power supply

Desktop/Tower

Connect due to terminal assignment written down.

Insert power supply carefully into the hot runner controller and tighten it.

Close hot runner controller



Desktop

Insert side panel again.

Tighten the 4 screws of the side panel.

Tower

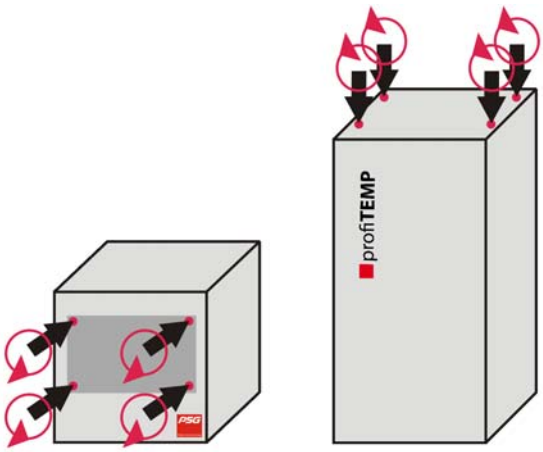
Close side door again.

Switch-on hot runner controller

8.4 Replace Display Unit and/or Controller Unit

Please pay attention to ↗Security References!	Switch-off hot runner controller.

Open hot runner controller



Desktop

Untighten the 4 screws of the Display Unit pT-DU on the front side of the hot runner controller.

Lift the Display Unit out carefully.

Caution! Feed lines connected to rear side of the Display Unit.

Tower

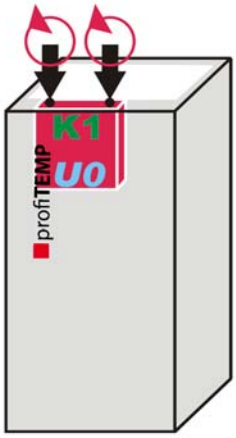
Untighten the 4 screws on the cover of the hot runner controller (if mounted with a Touch).

Carefully remove the cover (if mounted with a Touch) and put it crosswise on the frame.

Caution! Feed lines connected to rear side of cover.

Remove Controller Unit

Tower



Untighten the 2 screws, where the Controller Unit pT-CU is tightened with.

Reference designation K1 *U0*

Untighten connecting cables from Display Unit and/or Controller Unit

Desktop/Tower

Write down the terminal assignment!

Disconnect connecting cables.

Lift Display Unit and/or Controller Unit out carefully.

Replace Display Unit and/or Controller Unit

Desktop/Tower

Replace Display Unit and/or Controller Unit

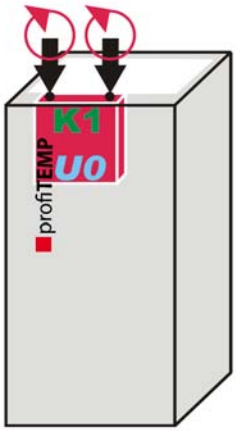
Tighten connecting cables to Display Unit and/or Controller Unit

Desktop/Tower

Connect due to terminal assignment written down.

Install Display Unit and/or Controller Unit

Tower

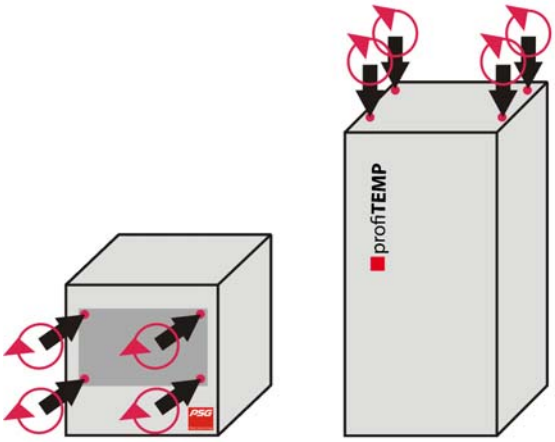


Tighten the 2 screws, where the Controller Unit pT-CU is tightened with.

Reference designation K1 *U0*

Close hot runner controller

Desktop



Insert Display Unit again.

Tighten the 4 screws of the Display Unit pT-DU on the front side of the hot runner controller.

Tower

Insert cover (if mounted with a Touch) again.

Tighten the 4 screws on the cover of the hot runner controller (if mounted with a Touch).

Switch-on hot runner controller

8.5 Replace Ethernet Switch

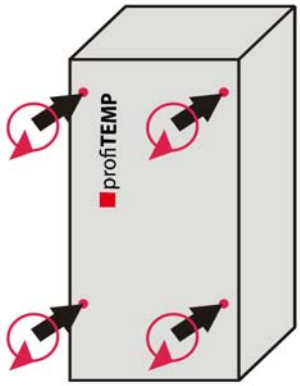
An Ethernet-Switch is installed, to establish a connection between hot runner controller and Touch-Screen (for operation software **TEMPSoft2**).

Please pay attention to ↗Security References!	Switch-off hot runner controller.

Open hot runner controller

Tower

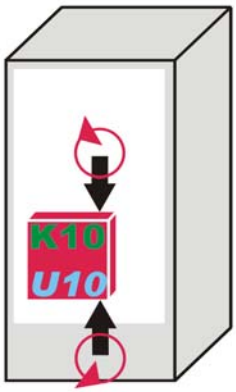
Untighten the 4 screws on the front side of the hot runner controller.



Remove the front side of the hot runner controller.

Remove the Ethernet-Switch Unit

Tower



Untighten the 2 screws, where the Ethernet-Switch is tightened with.

Reference designation K10 *U10*

Disconnect the connecting cables from the Ethernet-Switch

Tower

Write down the terminal assignment!

Disconnect connecting cables.

Lift Ethernet-Switch out carefully.

Replace Ethernet-Switch

Tower

Replace Ethernet-Switch

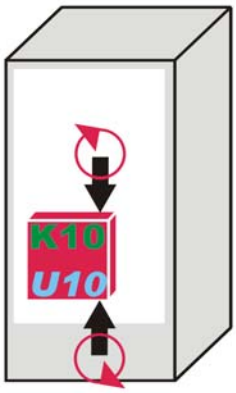
Connect the connecting cables to the Ethernet-Switch

Tower

Connect due to terminal assignment written down.

Install Ethernet-Switch

Tower

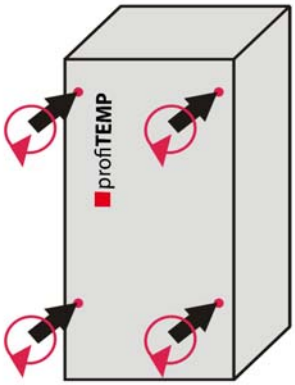


Tighten the 2 screws, where the Ethernet-Switch is tightened with.

Reference designation K10 *U10*

Close hot runner controller

Tower



Insert the front side of the hot runner controller.

Tighten the 4 screws on the front side of the hot runner controller.

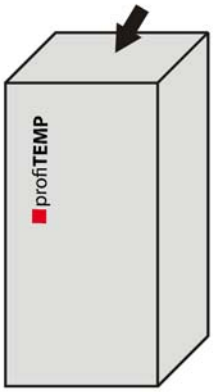
Switch-on hot runner controller

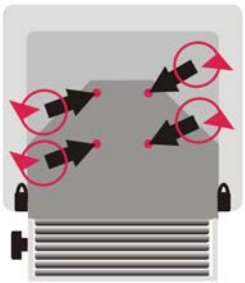
8.6 Replace Touch

Please pay attention to ↗Security References!	Switch-off hot runner controller.

Remove Touch-Screen from holder

Desktop/Tower





Untighten the 4 screws on the rear side of the Touch-Screen.

Remove Touch-Screen carefully from holder

Caution! Feed lines connected to lower side of the Touch-Screen.

Disconnect connecting cables from Touch-Screen.

Tower

Write down the terminal assignment!

Disconnect connecting cables.

Lift Touch-Screen out carefully.

Replace Touch-Screen

Tower

Replace Touch-Screen

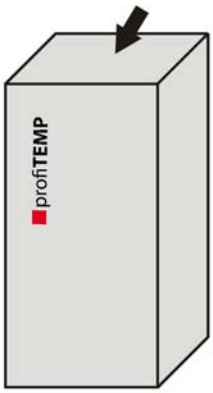
Tighten connecting cables to Touch-Screen.

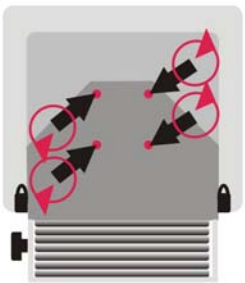
Tower

Connect due to terminal assignment written down.

Tighten Touch-Screen in holder

Tower





Insert Touch-Screen carefully into holder

Tighten the 4 screws on the rear side of the Touch-Screen.

Switch-on hot runner controller

8.7 Replace fan

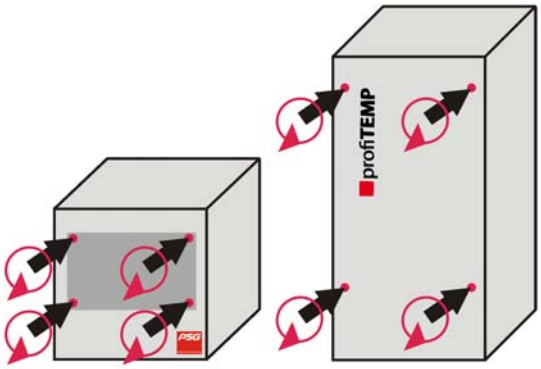
For Desktop fan from profiTEMP 012 Dd

Please pay attention to ↗Security References!

Switch-off hot runner controller.

Open hot runner controller	**Desktop/Tower**

Untighten the 4 screws on the front side of the hot runner controller.



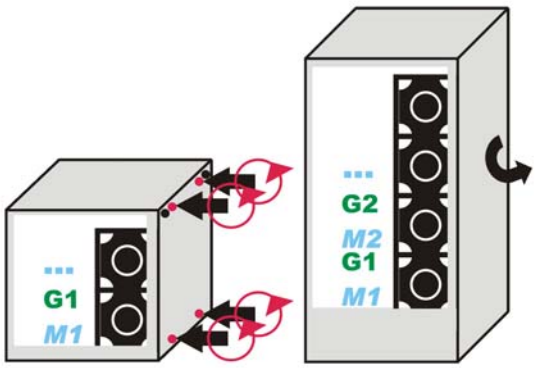
Remove the front side of the hot runner controller.

Desktop

Untighten the 4 screws on the right side panel of the hot runner controller (side with label).

Lift the side panel out carefully.

Caution! Protective conductor connected to side panel.



Tower

Open the right side door of the hot runner controller (side with label).

Reference designation G1-G8 *M1-M8*

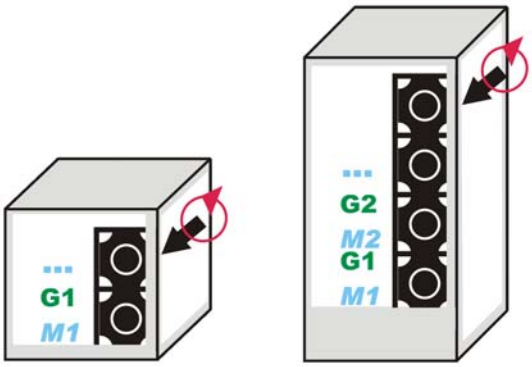
Remove Power Controller Cards	Desktop/Tower

Remove the power controller cards in the hot runner controller, where the fans must be removed.

See ↗Replace Hot Runner Controller Card HCC06

Remove fan

Desktop/Tower



Untighten connector on Power Plane Board pT-PP-PCB (reference designation K101-K108 *U101-U108*).

Untighten the 2 screws, where the fan is tightened with.

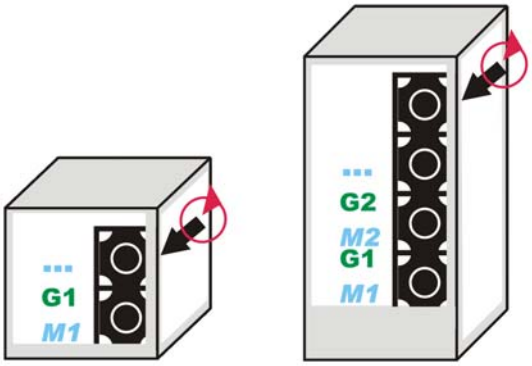
Lift fan out carefully.

Reference designation G1-G8 *M1-M8*

Replace fan

Desktop/Tower

Replace fan



Tighten connector on Power Plane Board pT-PP-PCB (reference designation K101-K108 *U101-U108*).

Tighten the 2 screws, where the fan is tightened with.

Close hot runner controller

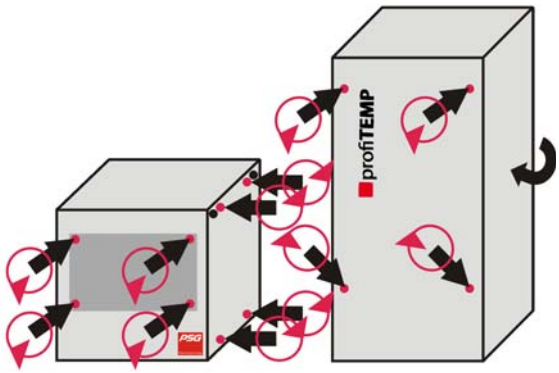
Desktop

Insert side panel.

Tighten the 4 screws on the side panel of the hot runner controller.

Insert the front side of the hot runner controller.

Tighten the 4 screws on the front side of the hot runner controller.



Tower

Close side door again.

Insert the front side of the hot runner controller.

Tighten the 4 screws on the front side of the hot runner controller.

Switch-on hot runner controller

9 Screen calibration touch screen

The operation software **TEMPSoft2** normally starts directly with the hot runner controller, due to installation settings. To perform the screen calibration on the touch screen, the operation software must be terminated.
The following steps are to be carried out.

Tools	USB keyboard
	<ALT> Key ALT on keyboard

9.1 Preliminary

Start hot runner controller as usual

Connect USB keyboard after start to touch

USB port
See left side under cover cap

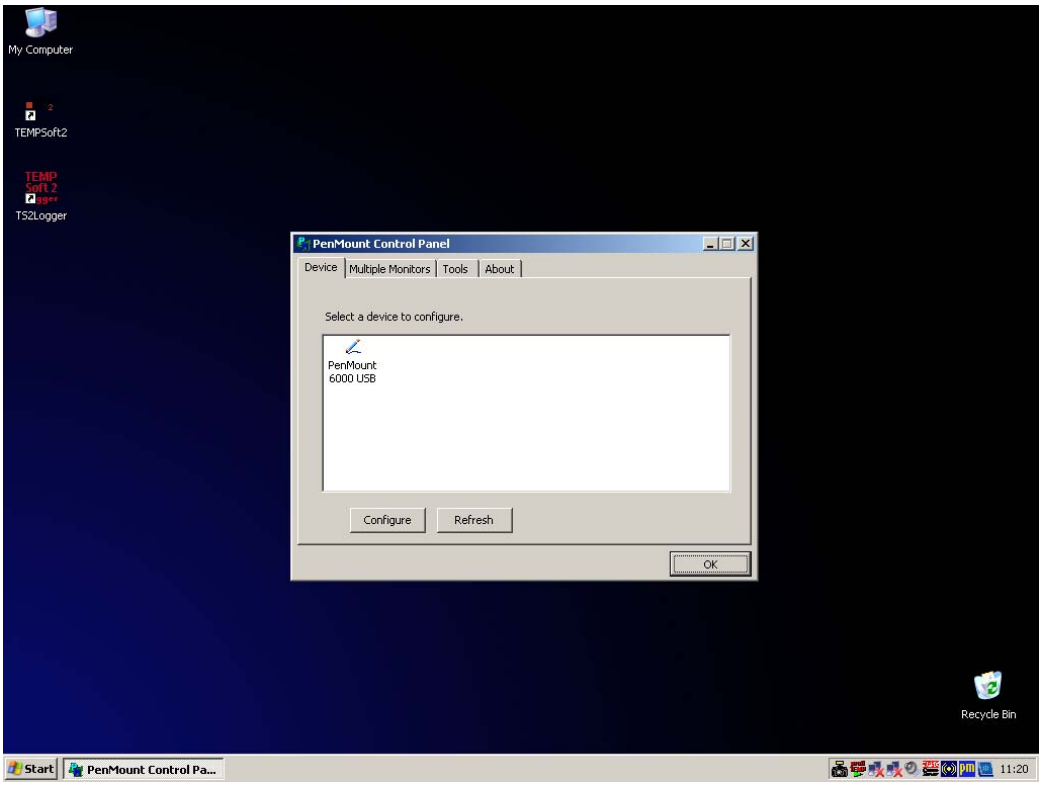
Stop operation software with <ALT><F4>

For calibration EWF (enhanced write filter) must first be deactivated (only as user Admin possible).

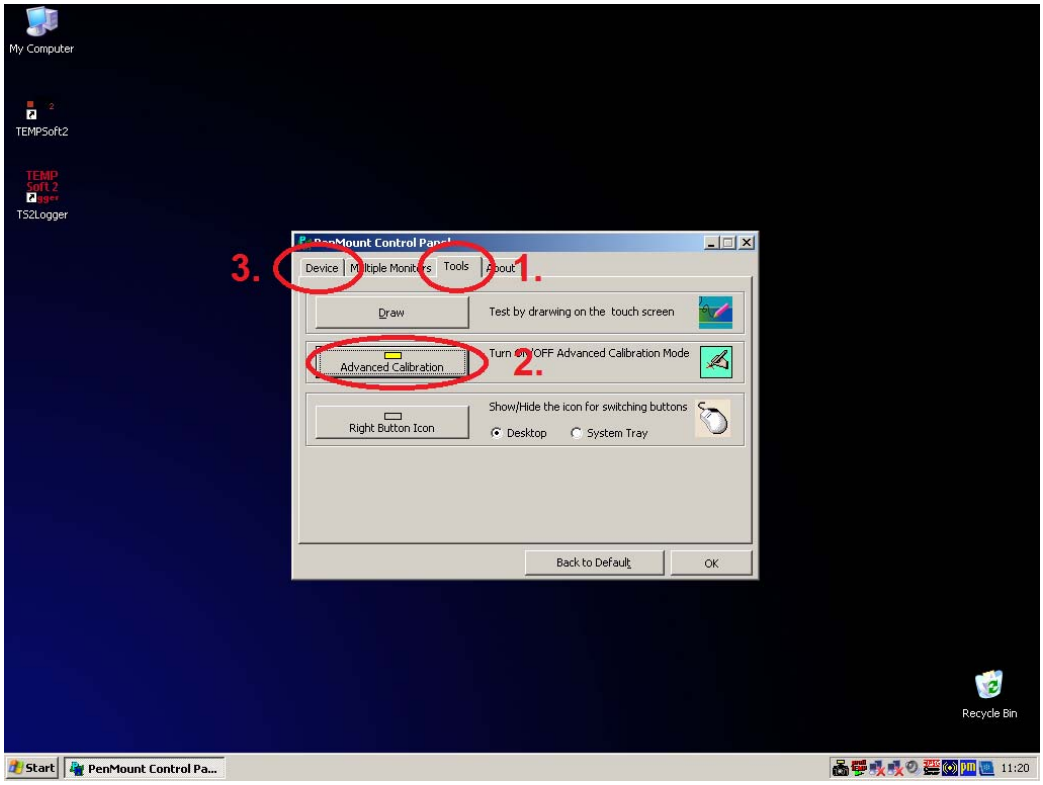
9.2 Calibration

1) Call calibration program **PenMount Control Panel**.

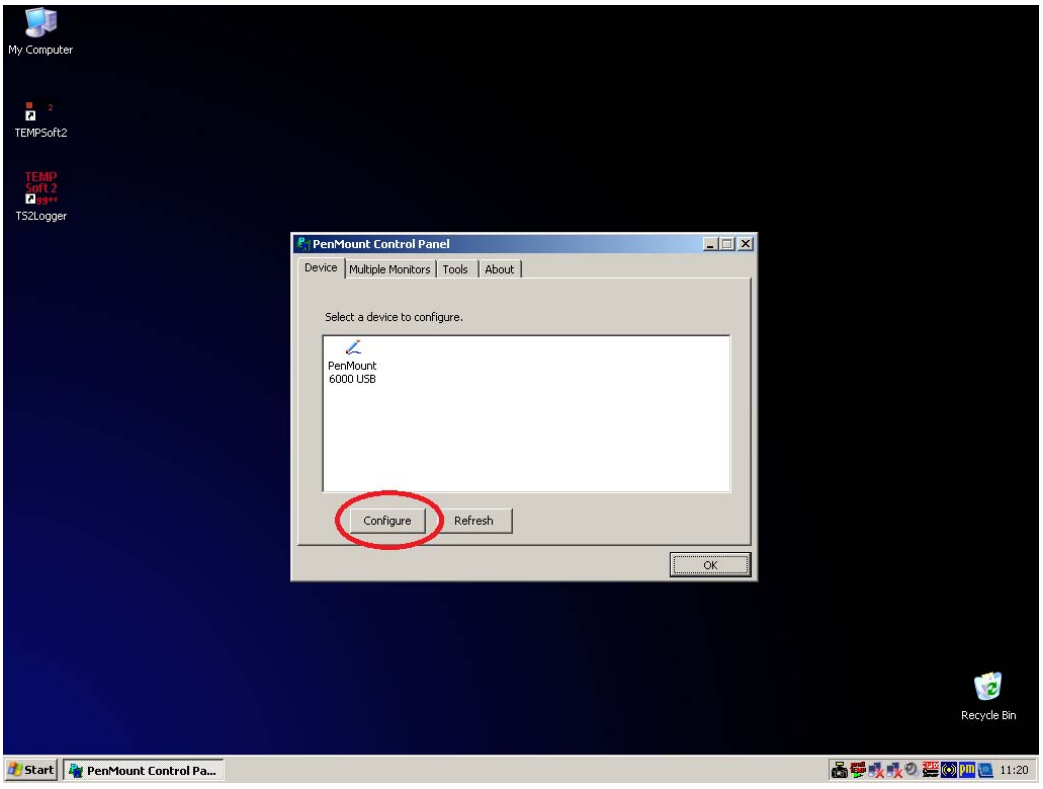
2) The Control Panel of the calibration program is opened.



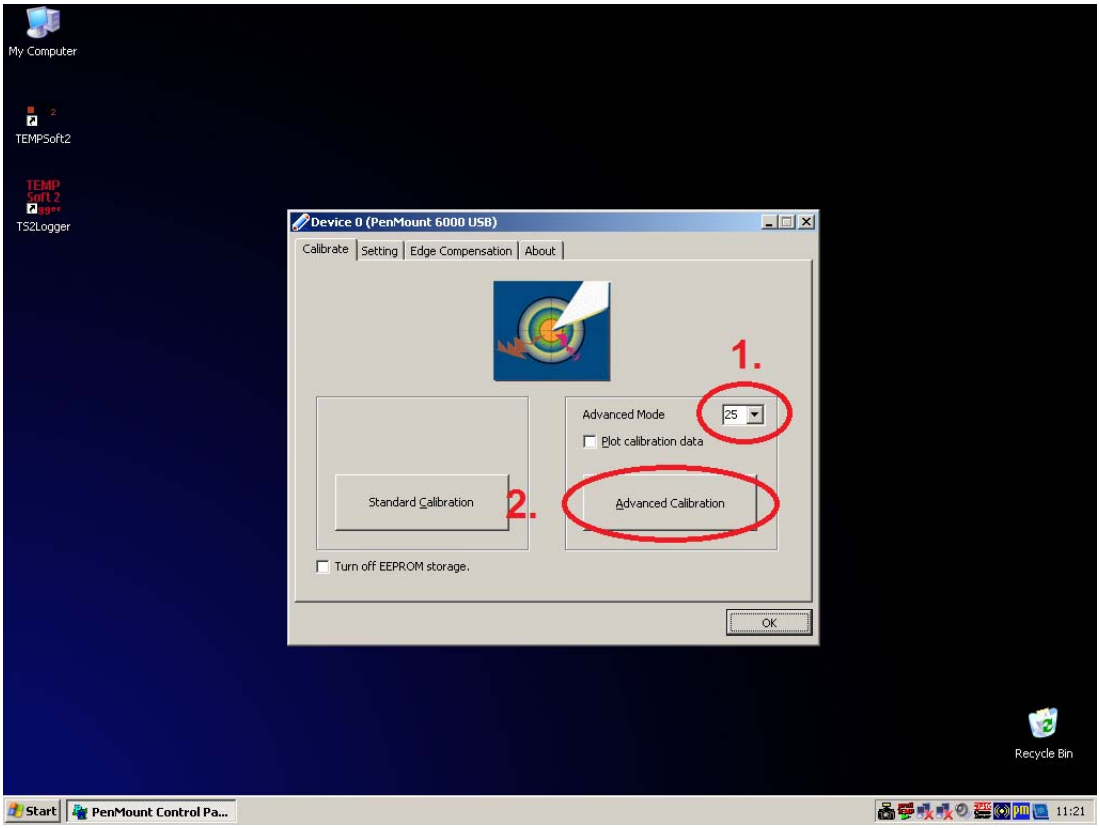
3) Set Control Panel to ADVANCED CALIBRATON.
Select register TOOLS [1.] - Select ADVANCED CALIBRATION [2.] (turns yellow) - Select register DEVICE [3.].

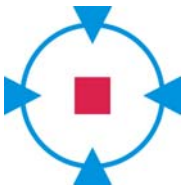


4) Select on Register DEVICE in Control Panel - CONFIGURE.



5) Set ADVANCED MODE [1.] to 25 - Start ADVANCED CALIBRATION [2.] by selection.





A red square is displayed, that has to be selected by click and hold.
TOUCH THE RED SQUARE. HOLD...

Is the calibration for this point finished the following message is shown
LIFT OFF TO PROCEED

(lift off the finger from the touch, select the red square on the touch on the next place)

Are all 25 points completed the following message is shown
CALIBRATION IN PROGRESS, PLEASE WAIT

Close all open windows by OK.

9.3 Post-processing

After calibration EWF (enhanced write filter) must necessarily be activated again (only as user Admin possible).

Then RESTART the touch necessarily.

Start - SHUTDOWN - RESTART

Touch starts automatically.
Standard user is activated, operation software is started.

10 Appendix

10.1 Version History

Version	Date	Changes
1.00.05	10/16/2014	In detail, the following amendments/corrections were made: ■ EWF
1.00.04	4/11/2014	In detail, the following amendments/corrections were made: ■ Item designation transferred into Reference designation IEC 81346-2
1.00.03	2/21/2014	In detail, the following amendments/corrections were made: ■ Tightening torques bus bar system ■ Overload specified
1.00.02	11/30/2012	In detail, the following amendments/corrections were made: ■ XS1, XM1 revised
1.00.01	7/13/2012	In detail, the following amendments/corrections were made: ■ Chapter screen calibration touch screen amended
1.00.00	5/31/2012	Valid for software version pt-DC xx5010A, pt-LED 064810, pt-LED 124810, HCC 06964810A First edition
...	...	...
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